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FM 31-50

DEPARTMENT OF THE ARMY FIELD MANUAL

C1, 2,

COMBAT IN FORTIFIED AND BUILT-UP AREAS

HEADQUARTERS, DEPARTMENT OF THE ARMY
MARCH 1964

CHANGE No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *22 April 1970*

COMBAT IN FORTIFIED AND BUILT-UP AREAS

FM 31-50, 10 March 1964, is changed as follows:

Page 3, paragraph 2. Subparagraphs *b* and *c* are superseded as follows:

b. The material in this manual is applicable to:

(1) General war, to include a consideration of the employment of nuclear and chemical munitions; protection from nuclear, chemical, and biological agents; and operations in nuclear, chemical, or biological environments.

(2) Limited war.

(3) Stability operations.

c. Users of this manual are encouraged to submit recommended changes and comments to improve the publication. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons will be provided for each comment to insure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding Officer, United States Army Combat Developments Command Infantry Agency, Fort Benning, Georgia 31905. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, United States Army Combat Developments Command, Fort Belvoir, Virginia 22060, to facilitate review and followup.

Page 8. Paragraph 4*d* is added as follows:

d. In Vietnam, well planned, extensive fortified and tunneled positions have been constructed by the enemy in all areas—urban, rural, and wilderness. These positions range in size and complexity from a one-man spider-trap to multi-level excavations of 4 or 5 kilometers in length. Excepting those surrounding villages and hamlets, the fortifications are usually well concealed and protected with massive cover, and they are usually booby-trapped. Mainly the fortifications serve three purposes:

(1) They are defensive positions from which to protect training and rest areas.

(2) They serve as storage areas for supplies and materiel.

(3) They are used as hospitals and by command groups and other critical agencies as shelters from air raids and artillery bombardments.

Page 9, paragraph 8*b*. In lines 8 and 9, "persistent toxic chemical agents" is changed to read "persistent-effect chemical agent."

Page 10. Paragraph 11 is superseded as follows:

11. Obstacles to Airborne and Airmobile Operations

a. Obstacles may be placed on terrain in areas which would otherwise be suitable for parachute drops or airlandings. Effective obstacles include craters, posts, barbed wire, immobilized or parked vehicles, rock-filled oil drums, minefields, abatis, and persistent-effect toxic chemical agents. Such manmade obstacles should be integrated one with another as well as with natural obstacles.

b. Helicopters may unload troops by use of troop ladders or by rappelling while hovering without landing in obstacle-studded terrain. However, once the helicopter-borne troops are on the ground, their movement may be impeded by the obstacles which prevent helicopters from landing. An airmobile capability gives the commander an option to bypass fortified areas and obstacles entirely.

Page 11. In paragraph 13*c*, line 9, "FM 7-11" is changed to read "FM 7-10." This same change is applied throughout the manual.

Page 11. Paragraph 13*d* is superseded as follows:

d. For details on platoon missions see FM 7-10.

Page 11, paragraph 14*b*, in line 1 delete "Biological"; in line 8 delete "and Biological"; in line 10 delete "and FM 3-10A".

*This change supersedes C 1, 18 May 1967.

Page 11, paragraph 14*c*. In lines 10 and 11 "nonpersistent chemical agents" is changed to read "nonpersistent-effect chemical agent". In lines 12 and 13 delete "or Biological."

Page 12, paragraph 15*k*. In line 1 delete "or biological".

Page 13. In paragraph 17*a*, line 12, the following sentence is added: During stability operations, extensive foot patrolling by specialized units and organic elements offers the best opportunity to obtain timely, specific information of a fortified area.

Page 16. In paragraph 26, after the title and before subparagraph *a*, the following sentence is added: During the attack of fortified positions in heavily vegetated or very rough terrain, the use of aircraft, bicycles, pack animals, and other expedient means should be considered for gun platforms and transport of crew-served weapons and ammunition.

Page 16, paragraph 26*a*. Line 1 is changed to read "*a*. *Mortars*. The medium and heavy mor-".

Page 16. Paragraph 26*b* is superseded as follows:

b. *Air Defense*. For details on the employment of organic nonair defense weapons in an air defense role, and the employment of air defense weapons, to include Redeye, see FM 7–10 and FM 7–20.

Page 16, paragraph 26*c*, delete last sentence.

Page 17, paragraph 26*d*, delete last sentence.

Page 19, paragraph 26*i*. In lines 1, 2, and 8 "nonpersistent chemical agents" is changed to read "nonpersistent-effect chemical agent" and in line 10 "Persistent chemical agents" is changed to read "Persistent-effect chemical agents."

Page 20, paragraph 28*b*. Lines 1 through 9 are changed as follows:

b. At company and platoon level, because of the complexity and concealment of some fortified areas, a unit conducting a reconnaissance in force must avoid alerting the periphery of the positions and then being ambushed from all sides by the defender. Utilization of point-type elements (at least one for each platoon or a minimum of three for each company regardless of the company formation) normally will preclude the entire unit being trapped and unable to employ supporting weapons effectively because of the proximity of friendly and enemy forces. In a coordinated attack, bunkers and tunnel apertures are neutralized through fire and maneuver. The fire support element neu-

Page 20, paragraph 29*c*. Line 21 is changed to read: "on orders of the element leader who is actually attacking."

Page 21, paragraph 30*b*(1). Line 4 is changed to read: "the bunker with chemical munitions, antitank weapons, grenades, demoli-"

Page 22. In paragraph 31, the following sentence is added at end of subparagraph *b*: Extensive psychological operations (PSYOP) along with non-lethal chemical munitions can have profound, positive affects in reducing the tenacity of the enemy.

Page 24, paragraph 35*b*(1). In lines 12 and 13 "general outpost line (GOPL)" is changed to read "general outpost (GOP)" and in lines 13 and 14 "combat outpost line (COPL)" is changed to read "combat outpost (COP)."

Page 26. In paragraph 39, the following is added at end of subparagraph *c*: Demolitions, emplaced during the preparation of the defense for such an emergency, can be detonated to destroy key positions if they are captured by the enemy. Continuous illumination can be of great assistance during night defense and counterattack.

Page 27. In paragraph 41, after *a*, a new subparagraph is added as follows:

a.1. During the decision making process, evaluation must be made as to the overall effects of contemplated operations on the welfare and attitude of civilians and the well-being of cherished or necessary buildings such as national shrines and monuments, water works, and medical facilities.

(1) Tactics which may provide the most expedient military success may cause an adverse effect on the civilian populace, which in turn could prove to be more costly in both time and lives of friendly soldiers. Detailed analysis is necessary to permit maximum neutralization or destruction of the enemy while minimizing adverse effects on noncombatant civilians.

(2) Whether the area is attacked or bypassed, the time and effort in meticulous and coordinated planning can be well justified by the relatively inexpensive rehabilitation of friendly civilians from intact buildings as compared to the costly, drawn-out process of dealing with irate

citizens from a partially or completely destroyed built-up area.

Page 28, paragraph 41. After subparagraph *h*, a new subparagraph is added as follows:

i. An airmobile assault of cities and urban areas usually will require modification of techniques which are otherwise normal for an airmobile operation in relatively unimproved or uninhabited areas. Some special considerations for airmobile operations in built-up areas are given below; for general considerations for airmobile operations, see FM 57-35.

(1) Landing areas for helicopters in built-up areas may be extremely limited. Open parks, broad streets, and plazas may be obvious areas suitable for helicopter landing, but the suitability of such areas will also be obvious to the defender and probably will be well covered by fire or studded with obstacles.

(2) A roof should not be used for helicopter touchdown until the soundness of the structure has been verified. This is especially important when structures have been subjected to preassault fires which may have weakened them. Prior to an airmobile assault, engineer teams or pathfinders may be used to determine the loadbearing capability of certain roofs, but such preassault reconnaissance must be done without disclosing the nature of the impending operation.

(3) Rappelling techniques and trooper ladders can be used to unload troops from helicopters in built-up areas as in most other areas, and these are excellent means of delivering troops to rooftops for top-to-bottom search of buildings (para 69). Consideration must be given to the vulnerability of helicopters and troops to sniper fire when utilizing either of these two techniques.

(4) Snipers are a particular hazard for helicopters operating in built-up areas. Buildings and rubble offer excellent cover and concealment for snipers, and intensive fires will be required to neutralize them. Such fires will include close air support, aerial artillery, fires from armed helicopters, indirect fires, and (to a limited extent initially) direct fires from ground weapons.

(5) Relatively good visibility is required for helicopters to avoid special hazards in built-up areas such as the irregular heights of buildings, powerlines, and antennas. Airmobile operations at night in built-up areas require detailed and careful planning.

(6) The commander of an airmobile force assaulting a built-up area may be required to give special consideration for the safety of noncombatants within the area. The problem may be especially acute in stability operations when the military-type force defending the built-up area is holding the civilian population as a mass hostage. In this situation, the airmobile force commander will base his plans on specific instructions from higher echelons. Once the airmobile operation is initiated in a built-up area, the accomplishment of the mission for that operation remains the commander's primary consideration; therefore, any restrictions on the use of his full combat power must be clearly defined and understood by all concerned before the start of the airmobile operation.

(7) After landing, troops in an airmobile assault of a built-up area will be employed as discussed in chapter 6.

Page 29. Following paragraph 43*a*, a new subparagraph is added as follows:

a.1. The judicial use of firepower provides an opportunity to defeat the enemy without extensive civilian casualties and extensive damage to buildings. Precision firing and maximum control of fires can preclude turning friendly civilians against the attacker. The time and effort spent to conserve the life of noncombatants and nonmilitary property can be well rewarded by the small effort subsequently required to reestablish a friendly populace as compared to the effort required to reestablish a hostile one.

Pages 29 and 30, paragraph 43*b*. In line 3 delete "or biological". In line 5 delete "and biological". In lines 7 and 8, delete "such as incubation time, delay in casualty production".

Page 30, paragraph 43*c*. In lines 5 and 6 delete "and biological". Delete last sentence of subparagraph *c*.

Page 30, paragraph 47. Last sentence of subparagraph *a* is changed to read: "Civilians may be hired on a voluntary basis, to prepare fortifications and to work on other labor projects; however, it should be assumed that enemy agents will be among them. This risk must be weighed against the labor gained."

Page 32, paragraph 50. The following is substituted for the first two lines of subparagraph *a:*

a. To preclude casualties and damage to structures, throughout the attack maximum use is made of PYSOP and non-lethal chemical munitions. The attack of a built-up area may be divided into three phases.

Page 37. In paragraph 62*b*, line 7, after "and penetrating power", the following is added: "The light antitank weapon (LAW) provides a direct means for delivering non-lethal chemical munitions on point or small area targets at a range of 20–750 meters. The munition functions on impact, and an effective agent concentration within a 5-meter radius can be established within 5 seconds after detonation."

Page 37, paragraph 62*d*. Line 1 is changed to read "*d.* Mortars. Both heavy and medium".

Page 46. Paragraph 71*c* is superseded as follows:

c. When an urban area has been seized by insurgent or guerrilla forces, an evaluation has to be made as to whether it is more advantageous, from both a tactical and stability operation perspective, to recapture it with unrestricted force or to recapture it using other techniques. The decision as to the amount of force and the specific techniques to be used to recapture the area is based on analysis of the psychological impact on the enemy, noncombatant civilians, and friendly troops; the safety of civilians and friendly troops; the destruction of buildings; and the military requirements for other impending tactical operations.

Page 46, paragraph 71. After *c*, the following subparagraph is added:

d. Material contained in this section must be supplemented by reference to FM 31-16 and FM 100–20.

Page 48, paragraph 73. After *c*, the following subparagraph is added as follows:

d. Small, well-trained, thoroughly rehearsed patrols can be used simultaneously with PSYOP and chemical munitions to demoralize and defeat with minimal force and destruction the defenders of a built-up area. These patrols should be given missions to neutralize key personnel and agencies through simple, covert techniques. Low-signature weapons and silent-kill techniques, together with PSYOP and non-lethal chemical munitions, can enhance breaking the will of the enemy with minimum violence.

Page 49. Paragraph 75. After *e*, the following subparagraph is added:

f. Stability Operations. Denying the guerrilla or insurgent access to the built-up area is of prime importance. Along with other free-world forces, maximum use is made of indigenous military, paramilitary, and police forces to establish and maintain appropriate security and traffic control measures. Specific areas, specific missions, and explicit coordination measures must be given to all agencies involved in populace control and defense of the built-up area. Tests and rehearsals will insure maximum effectiveness.

Page 50, paragraph 77*d*. The first sentence is changed to read:

d. All echelons of units, to include air defense elements, are assigned specific areas to be defended.

Page 50, paragraph 79*a*. In line 3 "(COPL)" is changed to read "(COP)".

Page 50. In paragraph 79*a*, line 10, the following sentence is added: "During stability operations, traffic control points, checkpoints, and other security points are made an integral part of the security echelon."

Page 50, paragraph 79*c*. In line 1 "COPL" is changed to read "COP".

Page 52, paragraph 80*c*(3). In line 1 "81-mm" is changed to read "medium".

Page 52, paragraph 82. In line 3 "COPL" is changed to read "COP".

Page 54, paragraph 85*a*. In line 5 "include direct fires" is changed to read "include both direct and indirect fires". Delete lines 6 and 7, and in line 8 "barrages" is changed to read "artillery targets."

Page 54, paragraph 86*a*. In lines 1 and 3 "4.2-inch" is changed to read "heavy".

Page 54. Paragraph 86*b* is superseded as follows:

b. Aerial Artillery and Air Defense Weapons. For discussion of aerial artillery and air defense weapons, see FM 7-10, FM 7-20, FM 44-1, and FM 57-35.

Page 55, paragraph 87. At end of paragraph the following sentence is added: Engineers also prepare landing sites for aircraft on both the ground and key buildings for use during contingency operations.

Page 55, paragraph 90. At end of paragraph, the following sentence is added: Rehearsals are important when aircraft are used, when civilians are still in the area, or when other than U.S. forces are involved.

Page 55, paragraph 91*b*. In lines 5 and 6 "(to include the Davy Crockett)" is deleted.

Page 56, paragraph 92. At end of paragraph, the following sentence is added: During stability operations, the counterattack is greatly influenced by considerations discussed in chapter 6.

Page 57, appendix I. "FM 3-10A" with title is deleted, "FM 7-11" with title and "FM 7-15" with title are superseded by "FM 7-10, The Rifle Company, Platoons, and Squads"; and "FM 23-20" with title is deleted.

Page 58, appendix I. In numerical sequence, the following references are added:

FM 19-4, Military Police Support, Theater of Operations

FM 31-23, Stability Operations—U.S. Army Doctrine

FM 44-1, U.S. Army Air Defense Artillery Employment

(C)FM 100-20, Field Service Regulations: Internal Defense and Internal Development (IDAID) (U)

Page 59, appendix II. Paragraph 2*b*(2), subparagraph (*b*) is superseded as follows:

(*b*) Techniques of entry and search of buildings, to include use of helicopters in built-up areas.

Page 60, paragraph 3*a*(1) (*d*). In line 2 delete "any" and at the end of line 3, add "such as air defense weapons."

Page 60. Paragraph 3*b*(2) after (*d*), the following subparagraph is added:

(*e*) Development of proficiency in the use of special-purpose or additional weapons, such as air defense weapons.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:
KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:
To be distributed in accordance with DA Form 12-11 requirements for Combat in Fortified and Built-Up Areas.

U.S. GOVERNMENT PRINTING OFFICE: 1970

REFERENCE

S/S ch 2

CHANGE No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *18 May 1967*

COMBAT IN FORTIFIED AND BUILT-UP AREAS

FM 31-50, 10 March 1964, is changed as follows:

Page 3, paragraph 2. Subparagraphs *b* and *c* are superseded as follows:

b. The material is applicable to nuclear and nonnuclear warfare; employment of, and protection from, chemical, biological, and radiological agents; and stability operations.

c. Users of this manual are encouraged to submit recommendations to improve its clarity or accuracy. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to Commanding Officer, United States Army Combat Developments Command Infantry Agency, Fort Benning, Ga. 31905. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, United States Army Combat Developments Command, Fort Belvoir, Va. 22060, to facilitate review and followup.

Page 9, paragraph 8*b*. In lines 8 and 9 "persistent toxic chemical agent" is changed to read "persistent-effect chemical agent."

Page 10. Paragraph 11 is superseded as follows:

11. Obstacles to Airborne and Airmobile Operations

a. Obstacles may be placed on terrain in areas which would otherwise be suitable for parachute drops or airlandings. Effective obstacles include craters, posts, barbed wire, immobilized or parked vehicles, rock-filled oil drums, minefields, abatis, and persistent-effect toxic chemical agents. Such manmade obstacles should be integrated one with another as well as with natural obstacles.

b. Helicopters may unload troops by use of trooper ladders or by rappelling while hovering without landing in obstacle-studded terrain. However, once the helicopter-borne troops are on the ground, their movement may be impeded by the obstacles which prevent helicopters from landing. An airmobile capability gives the commander an option to bypass fortified areas and obstacles entirely.

Page 11. Paragraph 13*d* is superseded as follows:

d. For details on platoon missions see FM 7-15.

Page 11, paragraph 14*c*. In lines 10 and 11 "nonpersistent chemical agents" is changed to read "nonpersistent-effect chemical agent."

Page 16, paragraph 26*a*. Line 1 is changed to read "*a. Mortars*. The medium and heavy mor-"

Page 16. Paragraph 26*b* is subperseded as follows:

b. Air Defense. For details on the employment of organic nonair defense weapons in an air defense role, and the employment of air defense weapons, to include Redeye, see FM 7-11.

Page 16, paragraph 26*c*, beginning on line 9, delete the last sentence.

Page 17, paragraph 26*d*, top of page, beginning on line 9 delete the last sentence.

Page 18, paragraph 26*f*. In line 6 "FM 7-10" is changed to read "FM 7-11."

Page 19, paragraph 26*i*. In lines 1, 2, and 8 "nonpersistent chemical agents" is changed to read "nonpersistent-effect chemical agent" and in line 10 "Persistent chemical agents". is changed to read "Persistent-effect chemical agents."

Page 24, paragraph 25*b*(1). In lines 12 and 13 "general outpost line (GOPL)" is changed to read "general outpost (GOP)" and in lines 13 and 14 "combat outpost LINE (COPL)" is changed to read "combat outpost (COP)."

Page 28. Paragraph 41*i* is added as follows:

i. An airmobile assault of cities and urban areas usually will require modification of techniques which are otherwise normal for an airmobile operation in relatively unimproved or uninhabited

areas. Some special considerations for airmobile operations in built-up areas are given below; for general considerations for airmobile operations, see FM 57–35.

(1) Landing areas for helicopters in built-up areas may be extremely limited. Open parks, broad streets, and plazas may be obvious areas suitable for helicopter landing, but the suitability of such areas will also be obvious to the defender and will probably be well covered by fire or studded with obstacles.

(2) A roof should not be used for helicopter touchdown until the soundness of the structure has been verified. This is especially important when structures have been subjected to preassault fires which may have weakened them. Prior to an airmobile assault, engineer teams or pathfinders may be used to determine the load-bearing capability of certain roofs, but such preassault reconnaissance must be done without disclosing the nature of the impending operation.

(3) Rappelling techniques and trooper ladders can be used to unload troops from helicopters in built-up areas as in most other areas, and these are excellent means of delivering troops to rooftops for top-to-bottom search of buildings (para 69). Consideration must be given to the vulnerability of helicopters and troops to sniper fire when utilizing either of these two techniques.

(4) Snipers are a particular hazard for helicopters operating in built-up areas. Buildings and rubble offer excellent cover and concealment for snipers, and intensive fires will be required to neutralize them. Such fires will include close air support, aerial artillery, suppressive fires from armed helicopters, indirect fires, and (to a limited extent initially) direct fires from ground weapons.

(5) Relatively good visibility is required for helicopters to avoid special hazards in built-up areas such as the irregular heights of buildings, powerlines, and antennas. Airmobile operations at night in built-up areas require detailed and careful planning.

(6) The commander of an airmobile force assaulting a built-up area may be required to give special consideration for the safety of noncombatants within the area. The problem may be especially acute in stability operations when the military-type force defending the built-up area is holding the civilian population as a mass hostage. In this situation, the airmobile force commander will base his plans on specific instructions from higher echelons. Once the airmobile operation is initiated in a built-up area, the accomplishment of the mission for that operation remains the commander's primary consideration; therefore, any restrictions on the use of his full combat power must be clearly defined and understood by all concerned before the start of the airmobile operation.

(7) After landing, troops in an airmobile assault of a built-up area will be employed as discussed in chapter 6.

Page 37, paragraph 37*d*. Line 1 is changed to read "*d. Mortars.* Both heavy and medium"

Page 46. Paragraph 71*d* is added as follows:

d. Material contained in this section must be supplemented by reference to FM 31–16 and 100–20.

Page 50, paragraph 77*d*. The first sentence is changed to read:

d. All echelons of units, to include air defense elements, are assigned specific areas to be defended.

Page 50, paragraph 79*a*. In line 3 "(COPL)" is changed to read "(COP)."

Page 50, paragraph 79*c*. In line 1 "COPL" is changed to read "COP."

Page 52, paragraph 80*c*(3). In line 1 "81-mm" is changed to read "medium."

Page 52, paragraph 82. In line 3 "COPL" is changed to read "COP."

Page 54, paragraph 85. In line 5 "include direct fires" is changed to read "include both direct and indirect fires." Delete lines 6 and 7, and in line 8 "rages" is changed to read "Artillery targets."

Page 54, paragraph 86*a*. In lines 1 and 3 "4.2-inch" is changed to read "heavy."

Page 54. Paragraph 86*b* is superseded as follows:

b. Aerial Artillery and Air Defense Weapons.

For discussion of aerial artillery and air defense weapons, see FM 7-11, FM 7-20, FM 44-1, and FM 57-35.

Page 55, paragraph 91*b*. In lines 5 and 6 "(to include the Davy Crockett)" is deleted.

Page 57, appendix I. FM 23-20 and title is deleted.

Page 58, appendix I, the following is added.

FM 44-1	U.S. Army Air Defense Artillery Employment
(C) FM 100-20	Field Service Regulations: Internal Defense and Internal Development (IDAID) (U)

Page 59, paragraph 2*b*(2), subparagraph (*b*) is superseded as follows:

(*b*) Techniques of entry and search of buildings, to include use of helicopters in built-up areas.

Page 60, paragraph 3*a*(1)(*d*). In line 2 delete "any" and at the end of line 3 add "such as air defense weapons."

Page 60. Paragraph 3*b*(2)(*e*) is added as follows:

(*e*) Development of proficiency in the use of special-purpose or additional weapons, such as air defense weapons.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:
KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:
To be distributed in accordance with DA Form 12-11 requirements for Combat in Fortified and Built-Up Areas.

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*FM 31-50

FIELD MANUAL No. 31-50

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *10 March 1964*

COMBAT IN FORTIFIED AND BUILT-UP AREAS

*This manual supersedes FM 31-50, 24 July 1952, including C 1, 1 December 1954 and C 2, 18 November 1955.

PART ONE

COMBAT IN FORTIFIED AREAS

CHAPTER 1

INTRODUCTION

1. Purpose

This manual provides guidance to commanders and staff officers in the fundamental doctrine and tactical principles of combat in fortified and built-up areas.

2. Scope

a. This manual is divided into two parts. Part one describes the characteristics, tactical considerations, and doctrine and techniques for the tactical employment of units in fortified areas. Part two covers the same material applicable to built-up areas. The material is focused largely on operations below division level to emphasize the unusual nature of operations in fortified and built-up areas at lower levels.

b. The material is applicable to either nuclear or nonnuclear warfare.

c. Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to the Commanding Officer, U.S. Army Combat Developments Command Infantry Agency, Fort Benning, Ga. 31905.

CHAPTER 2
FORTIFICATIONS

Section I. TYPES OF FORTIFICATIONS

3. General

a. Fortifications provide a base for offensive operations or a series of strong defensive positions for the protection of vital areas. They cause the attacker to mass and present a profitable target and to dissipate his combat power in the task of reducing the fortifications, thereby making him more vulnerable to counterattack.

b. The use of fortifications in war is as old as war itself. Through the ages, armies, fighting both offensive and defensive battles, have employed various types of fortifications constructed with many kinds of material. Logs, earth, rocks, concrete, and steel have been employed in numerous forms to construct walls, castles, bunkers, pillboxes, redoubts, and reinforced trenches.

(1) History records several concepts for providing protection for the defender and an obstacle to the attacker. One system is the linear, *fortified belt.* This was carried to an extreme by the Chinese when they built the Great Wall. While the fortified belt has been employed in modern times, the trend has been toward securing greater depth. Perhaps the best known examples of the *fortified zone* are the Maginot Line of World War I and the Siegfried Line of World War II.

(2) Another and more frequently employed system of fortifications is the *fortified locality.* The French exploited this method from the time of Louis XIV when his famous engineer, Vauban, fortified frontier cities, such as Strasbourg, Metz, Belfort, and Verdun, by surrounding each city with strong forts.

4. Fortifications in World War II and Korea

a. Observations and studies of the operations of World War I convinced many European military leaders that strong, permanent fortifications were essential to the defense of their countries. From this concept there developed a series of fortified lines such as the Maginot Line in France, the Siegfried Line in Germany, and the Mannerheim Line in Finland. These lines, however, had numerous structural differences.

(1) The Maginot Line consisted of vast, tiered underground forts, pillboxes, turrets (fixed and disappearing), and antipersonnel and antitank barriers. Reliance was placed on the almost indestructible nature of the fortifications themselves. The Siegfried and Mannerheim Lines, on the other hand, were built with an eye toward capitalizing on and strengthening the natural defenses afforded by the terrain. Deep belts of artificial obstacles reinforced the natural obstacles or covered the avenues of approach where natural obstacles were weak or nonexistent. Pillboxes and gun emplacements, located in width and depth, were positioned to cover the obstacles, to be mutually supporting, and to provide a continuous band of interlocking fires. Figure 1 shows a typical example of a German emplacement.



Figure 1. Pillbox on the Siegfried Line with stepped construction in the embrasure.

(2) The great difference between the Maginot and Siegfried Lines was not so much in the manner in which they were constructed as in the concept of their use. The Maginot Line was based on the static defense principle. The enemy would be held at bay by the strength of the fortifications and the firepower they put forth. Penetrations would be counterattacked by local forces sallying forth from their underground shelters. Little or no thought was given to large-scale counterattacks. Conversely, the Siegfried Line emphasized the offensive. As a result, the purpose of obstacles and emplacements was to slow or blunt the enemy attack. Strong, mobile armies held behind the line in reserve would then counterattack and destroy the weakened enemy forces. The accent here was on using fortifications to set up the enemy for destruction by counterattack, not on letting him destroy himself by attacks against the fortifications. Figure 2 illustrates the manner in which the Siegfried Line was laid out.

b. World War II saw many other variations in the type and use of fortifications. The most important were those of the Japanese and Russians.

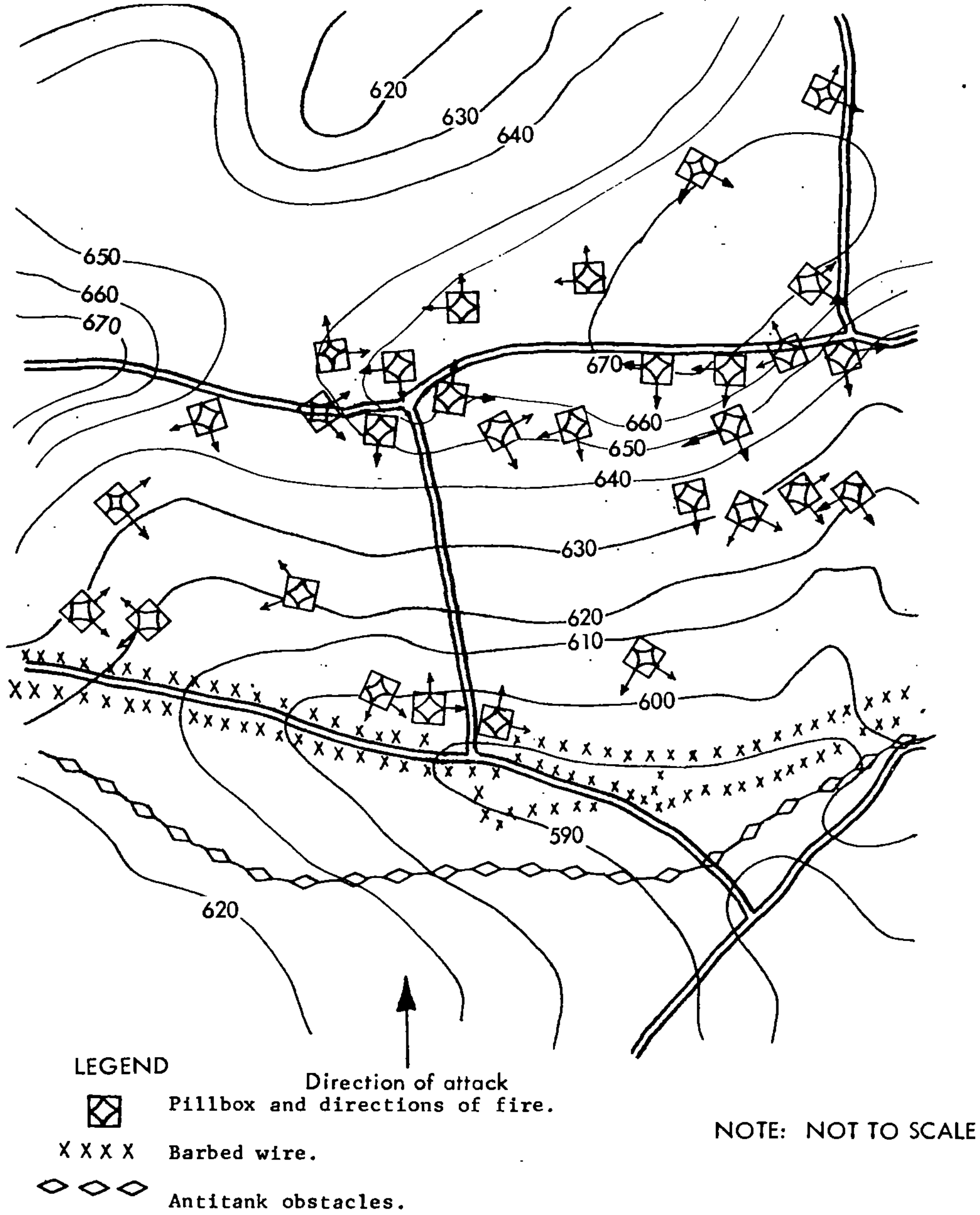


Figure 2. Diagram of a portion of the German Siegfried Line (schematic).

(1) The Japanese normally employed the fortified locality principle. Maximum use was made of the terrain features offering the best natural defense. Pillboxes and bunkers were made of concrete, earth, and logs. Tunnels were used extensively and were often connected to provide an underground system which protected personnel, supplies, and communications, and permitted covered movement from one part of the area to another. Because of the rugged terrain often utilized and the characteristic lack of strong, mobile reserves, the Japanese seldom counterattacked with other than local reserves. In this respect, their use of fortifications resembled that of the French.

(2) The Russian scheme of defense combined the fortified locality principle

with the German emphasis on strong counterattacks. Key terrain features were organized for all-around defense by units of approximately battalion size. These centers of resistance were deployed irregularly along a front. Pillboxes, gun emplacements, underground bunkers, and shelters were made from the strongest available material. Antitank ditches, minefields, barbed wire, and other obstacles were used to protect the

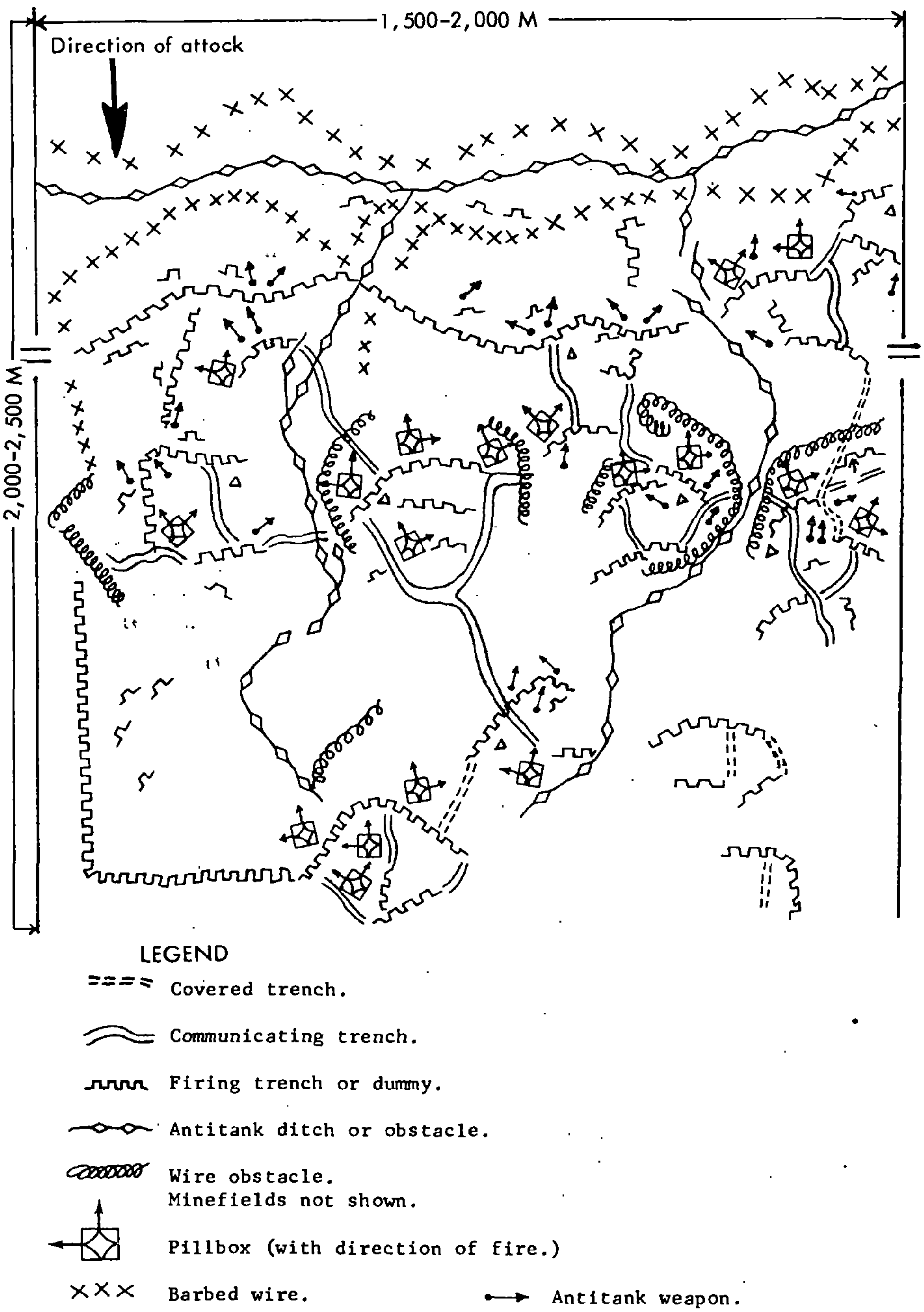


Figure 3. Diagram of a Russian fortification of a center of resistance (schematic).

strongpoints and impede the attacker's progress through the gaps between them. These gaps were covered by direct and indirect fire weapons located within one or more strongpoints. Often, these gaps were lightly covered by obstacles to induce the attacker to commit his force into what appeared to be a weak point in the defender's line. The appearance was deceptive because, once committed in the gap, the attacker found himself faced on three sides by strong fortifications and subjected to devastating fires from many weapons. Then, weakened by the effects of these fires, he would be struck by a counterattack launched by mobile forces that had been held in reserve behind the rows of strongpoints. Defense in depth was secured by building three irregular rows of strongpoints separated by 10,000 to 15,000 meters. See figure 3 for a schematic diagram of a Russian fortified center of resistance.

c. Late in 1951 when the war in Korea became stabilized, the Chinese and North Korean Communists and US–UN forces improved their lines until they eventually became fortified positions. In general, the techniques adopted were the same as those employed in World War II. Rocks, logs, and dirt were used to construct bunkers, gun emplacements, and networks of tunnels. These fortifications covered all key terrain up to a depth of some 30,000 meters.

5. Types of Fortified Areas

A *fortified area* is one containing numerous defensive works. These may include fortified weapon emplacements or bunkers, protected shelters, reinforced natural or manmade caves, entrenchments, and obstacles. Depending on its location, extent, and depth, a fortified area and its ports may be classified as follows:

a. Fortified Locality. A grouping of defensive works about a single location, either without regard to any other defensive system, or as a part of a large defensive system.

b. Fortified Position. A series of strongly organized localities disposed in width and depth in such a manner as to be mutually supporting. Exceptionally, it may be a single, strongly organized locality.

c. Fortified Belt. A linear grouping of fortified positions.

d. Fortified Zone. A system of fortified positions extending laterally and in depth, normally consisting of two or more fortified belts.

Section II. ORGANIZATION OF FORTIFIED AREAS

6. General

a. Fortified works of some nature are always constructed when military forces have a defensive mission. Depending on the time and resources available for construction, fortified works may range in complexity from simple positions hastily prepared with locally available material to large permanent-type works in organized and integrated belts or zones. Permanent-type works include concrete bunkers with thick walls, fixed embrasures or steel turrets, intricate underground passages, and elaborate troop quarters. These are unlikely to be used in normal operations because of their great expense in time, material, and manpower, and the fact that they may be bypassed by attacking forces. Consistent with the frequent movement of units on the modern battlefield, mostly log or earth bunkers and field fortifications will be used.

b. Log or earth bunkers, emplacements, and shelters, which may be constructed of locally available materials, provide good protection for personnel and weapons, depending upon the depth of construction and the strength and thickness of the overhead cover. They afford a degree of protection from nuclear weapons effects and chemical and biological agents. For details of construction, see FM 5–15.

7. Organization of Fortified Areas

a. The organization of a fortified locality

is based upon the retention of a specific terrain feature or an important installation. A perimeter defense is organized to provide all-around defense. Bunkers are mutually supporting and embrasures are sited so that all portions of the perimeter can be covered by fire. Maximum use is made of obstacles, including wire entanglements, mines, and various antitank obstacles.

b. Fortified positions are organized in a manner similar to fortified localities, except that they are usually wider and possess greater depth. A perimeter defense is not normally established; however, all-around defense is provided by reserve forces and the occupation of supplementary positions.

c. Fortified belts form the backbone of a fortified area. They are designed to stop the enemy by delivering integrated fires from protected weapons emplacements. Fortified belts are usually 2,000 to 4,000 meters in depth, with individual bunkers and emplacements within each belt positioned to cover all approaches into the area. Mutual support is provided between bunkers. Reserves in shelters at strategic locations within the fortified belt are used for counterattack against attacking forces that succeed in penetrating it.

d. A fortified zone is organized in depth with two or more belts. Flank security is provided by tying the fortified zone in with a natural terrain barrier. A typical fortified zone includes field fortifications 5,000 to 10,000 meters in front of the first fortified belt. These are manned by security forces to deceive, disorganize, and delay the attacker; inflict casualties; and cause him to make frontal attacks on the fortified belt. Security forces occupy key terrain features or cover important road nets to attempt to force the attacker to deploy his forces prematurely, after which the security forces withdraw to keep from becoming decisively engaged. Belts are usually located 10,000 to 15,000 meters apart to force the attacker to displace his supporting weapons before assaulting the next belt. This delay tends to destroy the continuity of the attack, and allows the defender additional time to regroup his forces and launch counterattacks to restore the original position. The area between fortified belts contains numerous fortified localities and other defenses at critical points so as to impose maximum delay and attrition on forces that penetrate the fortified zone.

Section III. OBSTACLES

8. General

a. Both natural and manmade obstacles are used extensively in fortified areas. Natural obstacles are exploited to the maximum, and are extended, improved, and reinforced by artificial obstacles. The nature of the principal threat, whether dismounted, armored, mechanized, airborne, or a combination of several of these, will largely determine the character of the obstacles to be constructed. Obstacles are employed to canalize and slow the enemy and cause him to deploy prematurely.

b. Obstacles are often positioned to separate armor from infantry and thus render each element vulnerable to defeat. Obstacles designed to impede both armor and infantry are more effective than either antimechanized or antipersonnel obstacles employed separately. Contamination of these obstacles with persistent toxic chemical agents such as liquid VX will provide increased effectiveness.

9. Antipersonnel Obstacles

Barbed wire entanglements, trip flares, antipersonnel mines, flame field expedients, and warning devices strengthen the defense and help protect the defender from surprise attack or infiltration at night. Such obstacles should be close enough to the fortification for adequate surveillance by night or day, but beyond effective hand grenade range. Nuisance minefields, boobytraps, and persistent chemical agents are also effective against personnel and may delay the attacker's use of an area or installation immediately after friendly troops have withdrawn.

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10. Antimechanized Obstacles

Antitank minefields, nuisance minefields, demolitions, ditches, and structures of logs, concrete, or steel are employed to halt or delay wheeled and tracked vehicles long enough for antitank fire to destroy them (figs. 4 and 5).



Figure 4. Dragon's teeth, showing five double rows.

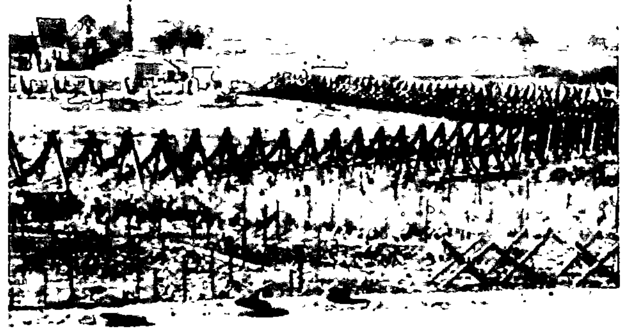


Figure 5. Steel rail obstacles.

11. Antiairborne and Antiairlanded Obstacles

Obstacles are placed on suitable landing fields and parachute drop zones to demolish aircraft in landing and impede movement in the area by parachute troops. Effective obstacles include craters, posts, barbed wire, immobilized or parked vehicles, rockfilled oil drums, minefields, felled trees, and persistent toxic chemical agents such as VX alone or integrated with other obstacles.

CHAPTER 3
ATTACK OF A FORTIFIED AREA

Section I. GENERAL

12. General

This chapter deals primarily with the attack of a fortified area consisting of one or more fortified belts with mutually supporting bunkers and formidable obstacles. The area is of sufficient width to prevent bypassing and requires the employment of one or more maneuver battalions.

13. Mission

a. The mission of the attacking echelon may include the seizure of terrain objectives that will assist in making the penetration of the fortified area and assist the passage of an exploiting force. A nuclear preparation may permit the passage of the exploiting force prior to the time the penetration is completed. In a nonnuclear situation, the attacking echelon is normally required to clear the enemy from the assigned zone of action.

b. The battalion is the basic maneuver element and may participate in the brigade attacking echelon or reserve. When in the attacking echelon, the battalion is normally assigned a terrain objective or objectives. Missions for reserve battalions are essentially the same as in other offensive operations.

c. Rifle companies will also be assigned missions as part of the attacking echelon or reserve. Attacking rifle companies are usually assigned bunkers as intermediate objectives and terrain features as final objectives. Final objectives for rifle companies are designated to facilitate reorganization and consolidation of the battalion objective (FM 7–11). For details of employment of armor units, see FM 17–1.

d. For details on platoon missions see paragraphs 28 through 31 and FM 7–15.

14. General Considerations

a. In attack of a fortified area, the defender has the advantage of greater protection against all types of fire. His prepared obstacles, carefully planned fires, and thoroughly rehearsed counterattack plans give him additional advantages. For these reasons, enemy fortified areas are, when possible, contained by minimum forces while the main force bypasses and continues the advance to deeper, more decisive objectives.

b. The use of chemical, biological, and nuclear weapons in the attack of a fortified area will supplement the effects of other fires, reduce the mutual support required between bunkers, and facilitate bunker destruction. The ability of napalm to burn off camouflage and produce incendiary damage, and of chemical and biological agents to penetrate into fortifications, favors use of these agents (FM 3–10 and FM 3–10A). See paragraph 26*g* for a discussion of nuclear weapons effects.

c. There are certain disadvantages to defending a fortified area. The defender is tied to a fixed position; this permits the attacker to determine accurately the defender's disposition and weaknesses, after which the attacker can systematically maneuver to destroy the position by fire, explosives, and incendiaries, or render the position ineffective through the production of casualties by the use of nonpersistent chemical agents. The position may be neutralized through the use of chemical or biological incapacitating agents.

d. The attack of a fortified area follows the basic principles of offensive operations; however, greater emphasis is placed upon detailed planning, special training and re-

hearsals, increased fire support, and use of special equipment. The degree of special preparation depends upon the character and extent of the defense.

e. The integration of psychological warfare operations in the attack of a fortified area is worthy of special consideration. Psychological warfare units can be used to cause confusion and reduce the defender's determination to fight. For details of psychological operations, see FM 33-5.

15. Special Considerations

Special considerations in the attack of a fortified area are as follows:

a. A primary purpose of a fortified area is to cause the attacker to mass and present a profitable target. Plans for the attack must minimize this danger, consistent with the accomplishment of the assigned mission. Opportunities to create tactical surprise should not be overlooked (FM 7-20).

b. Detailed intelligence is required upon which to base plans, training, and rehearsals.

c. Planning and preparation are centralized, but the execution is decentralized.

d. Detailed fire planning includes the coordination of all available fires such as tanks, combat engineer vehicles, self-propelled artillery, antitank weapons, and close air support by Air Force aircraft and Army air vehicles and weapons.

e. The area selected for penetration must be isolated from the remainder of the fortified area. Nuclear fires are particularly well suited to this task. Smoke isolates individual strongpoints from the observed fires of other fortifications. Indirect fire weapons destroy camouflage, neutralize and destroy enemy field fortifications and artillery, and screen the movement of assault troops. If the fortified area is wooded, infiltration may be employed for the seizure of key command and communication bunkers.

f. The assault elements are tailored to their specific missions and should be specially trained and rehearsed on replicas of the position. Their principal weapons are demolitions, flamethrowers, and direct fire weapons.

g. Reserves follow closely behind the assault echelon to exploit the penetration, maintain the continuity of the attack, or defend critical areas against counterattack.

h. Airmobile and joint airborne forces may be used in conjunction with other attacks of the fortified area principally to block the movement of large enemy reserves, isolate and/or assault strongpoints, and attack fortifications from the rear.

i. Unless needed by the attacker, captured armament is moved or destroyed and fortifications are demolished to prevent their use by the defender if recaptured. After a bunker is captured, it should be damaged enough to render it useless to the defender should he recapture it. Bunker firing embrasures are usually not oriented so they would assist the attacker in defending against counterattack. Troop shelters, however, may be useful for this purpose and are therefore retained intact.

j. The capture of key bunkers may provide information which is applicable to, and may assist in, the seizure of similar bunkers; for example, information on communication, obstacles, direction and the internal defensive characteristics of fortifications.

k. If the use of chemical or biological agents is authorized, careful consideration must be given to weather conditions. These conditions will influence the effectiveness of such an attack as well as troop safety.

16. Intelligence

a. The basic intelligence and counterintelligence principles applicable to preparing for the attack of a fortified area are the same as those for any other type of offensive operation (FM 30-5). The collection plan is based on the essential elements of information (*EEI*) and other intelligence requirements established by the commander. Special measures are taken to determine the following:

(1) Exact location and extent of individual fortifications.
(2) Location and number of embrasures and fields of fire and types of weapons therein.
(3) Location of all entrances and exits to emplacements.
(4) Direction of fire from enemy fixed weapons and types of weapons.
(5) Extent of underground fortifications.
(6) Location of all natural and artificial obstacles. The defenses are carefully analyzed to detect any weak spots.

(7) Location and condition of reserves, and reinforcements, including supplies, weapons, ammunition, and transportation.

b. Army topographic engineer units prepare large-scale maps of the fortified area. Available maps and intelligence must then be supplemented and updated to the extent that time, capabilities, and facilities will allow in order to provide required information of the terrain and the details of individual emplacements and weapons positions. Terrain models and sandtables should be prepared. Detailed and frequent airphoto coverage is a major source of information. Special photos are used to penetrate camouflage, while low oblique photos are used to reveal vertical detail such as embrasures that may not be picked up by vertical photos. Open emplacements, obstacles, and newly constructed log and earth bunkers are more readily located than other fortifications. Aerial surveillance by observation and photography can identify current construction and detect other activity. Additional detailed information regarding construction and plans of fortifications may be obtained from prisoners of war and from noncombatants, some of whom may have been used to construct fortifications.

17. Reconnaissance

a. Ground and aerial reconnaissance are primary means of collecting information about a fortified area. Both are exploited to provide detailed information such as the location of local reserves, troop movements, artillery positions, self-propelled weapons, actual and dummy emplacements, and camouflaged works. Reconnaissance should emphasize the need to discover the most advantageous direction and routes of maneuver of attack elements, and the best uses of direct fire support.

b. Reconnaissance by direct and indirect fire is also an effective technique. Under direct fire, haystacks and houses are often revealed as camouflaged concrete emplacements. Caves and indentations in hillsides are reconnoitered by direct fire and may disclose prepared positions. After an indirect fire mission is completed in a particular area, detailed aerial observation using Air Force aircraft and Army air vehicles in conjunction with visual or electronic surveillance techniques often discloses a road, trail, or emplacement where the camouflage has been destroyed or altered by the fire.

c. A reconnaissance-in-force may be used to develop enemy information rapidly, and to discover, ascertain, and test the enemy's position and strength. Although its primary aim is reconnaissance, the reconnaissance-in-force may discover weaknesses in the enemy dispositions which, if promptly exploited, may achieve tactical success. A battalion may conduct a reconnaissance-in-force for the brigade to which it is attached, or it may be committed to exploit enemy weaknesses discovered by other reconnaissance elements. Elements of a battalion may also conduct a reconnaissance-in-force on a limited scale. Armored formations are ideally suited to a reconnaissance-in-force because of their mobility and firepower.

d. For considerations and conduct of reconnaissance operations, see FM 7–20 and FM 61–100.

18. Communication and Coordination

The success of the detailed coordination effort depends upon the effectiveness of the communication system developed for the attack. Both wire and radio are used. Radio nets must be provided with common channels between attacking and supporting forces. Prearranged visual signals, such as pyrotechnics, may be used to signal the capture of key bunkers or objectives. Emergency signals for lifting or shifting fires must be thoroughly understood by all subordinate leaders. Positive arrangements must be made to position and control all units of the attacking echelon so that piecemeal assaults are prevented and simultaneous attacks are assured against mutually supporting defenses throughout the entire operation. Adjacent units must not arrive in attack positions and come under the defender's fires separately.

19. Night Attacks

Night attacks may be conducted to surprise the defender and to avoid or reduce losses which might be incurred by daylight attacks against fortified areas. Successful night attack is especially dependent upon detailed reconnaissance. Night attacks

normally are conducted to exploit successful daylight attacks, to gain important terrain, or to seize key bunkers prior to daylight as bases for continuing the attack by day. For additional information and details on battlefield illumination, see FM 61–100.

Section II. PLANNING

20. General

a. Plans for the attack of a fortified area, to include the use of feints and ruses (FM 61–100), are more refined and are prepared in greater detail than plans for attacks against other defensive positions. Centralized planning, which is characteristic of this type of operation, is normally conducted at battalion and higher levels. Specific tasks and their sequence of accomplishment are frequently assigned by battalion. At company and platoon level, detailed plans are prepared for the reduction of each bunker. Direct fire, crew-served weapons are assigned specific embrasures and other detailed targets for neutralization. The detailed plans should provide for continuation of the attack through the entire depth of the fortified area and for reorganization on the far side of it. Plans must provide for the possibility of encountering previously undetected bunkers along the route to the objective and for neutralizing underground defenses encountered. When nuclear or chemical weapons are employed to support the attack, alternate plans must be prepared for execution in the event the desired results are not obtained. For example, meteorological conditions may preclude the use of chemical fires at the desired time of attack.

b. Under nonnuclear conditions, the attack of a fortified area is slower, more deliberate, and more strictly controlled. A greater concentration of maneuver elements is required to compensate for the absence of nuclear fire support; frontages of attacking units are narrower; objectives are shallower; and units normally are required to clear their assigned zones. Each bunker must be systematically reduced by ground assault. Reserves may be committed more frequently than in other types of operations. Since slow, hard fighting is anticipated throughout the depth of the fortified area, armored and mechanized infantry exploitation forces will probably not be committed until the penetration is achieved.

21. Scheme of Maneuver

a. A plan for the attack of a fortified area is prepared in advance to permit subordinate units to be disposed correctly for movement to the area and to attack positions.

b. Planning and organization for the attack continue after contact has been made and the fortified position is developed. Planning includes the exploitation phase of the attack. While troops and materiel are being assembled and readied, commanders and staffs conduct detailed studies of maps, aerial photographs, and ground and aerial reconnaissance reports. Evaluated information is disseminated to attacking units as intelligence.

c. A passage of lines may be employed for initiating the attack. This type of action will afford the attacking units adequate time for preparation and provide a covered position from which they can procure special equipment, conduct rehearsals, and make final preparations for the attack.

22. Formations

a. The necessity for heavy fighting throughout the depth of the fortified area usually requires formations in greater depth than in normal offensive operations in order to maintain the momentum of the attack. This depth will be maintained at brigade level. The number of companies in the attacking echelon will depend upon the assigned frontages, anticipated enemy resistance, forces and fire support available, and the nature of the fortified area.

b. In assigning frontages, consideration should be given to the density of bunkers to be attacked. Since the attack will constitute a series of platoon assaults, battalion and company commanders must consider the capabilities of the attacking platoons. The primary restrictions on the number of bunkers assigned to a rifle platoon for reduction during a particular operation depend upon the following:

(1) Length of time a bunker must be guarded to prevent reoccupation by the enemy.

(2) Ability to resupply the unit.

(3) Availability of special equipment in sufficient quantity to continue the attack.

(4) Ability of the organization to sustain casualties and remain effective.

23. Control Measures

a. Control measures employed in the attack of a fortified position are more restrictive than in less deliberate attacks, and normally include a sequence for the reduction of known bunkers. Since seizure of the bunkers is necessary to clear the zone and insure domination of the objective area, bunkers as well as terrain features are assigned to rifle companies as intermediate objectives. Terrain features are designated as company objectives to facilitate reorganization and control, and defense of the battalion and brigade objectives.

(1) In a nonnuclear situation, the objectives initially are located within the nearest fortified belt or zone. Reserves may be required to seize terrain for continuation of the attack against the next fortified belt.

(2) Nuclear fire support will permit an attack in greater depth because of the destruction or neutralization of many bunkers. The seizure of deeper objectives may facilitate the launching of an attack against the next fortified belt.

b. A sequence for the reduction of known bunkers is assigned to rifle companies to insure that—

(1) Fortifications which are mutually supporting will be attacked simultaneously.

(2) Fortifications having fields of fire that dominate antitank and other obstacles and routes are reduced as quickly as possible.

(3) Maximum mutual support between attacking companies is maintained.

(4) Employment of supporting fires can be readily coordinated.

(5) A maximum number of fortifications can be attacked from the rear or from an undefended or "blind" side.

(6) The battalion zone is cleared to insure that enemy troops or shelters are not bypassed.

24. Frontages

Frontages for divisions attacking a fortified area will normally be less than those employed in normal offensive operations, with correspondingly reduced frontages for attacking brigades, battalions, and companies. The specific frontages will be determined by the mission, enemy situation, number of bunkers to be cleared, terrain, and troops available. Other factors may include existing road nets, anticipated resistance, available fire support, and relative strength and mobility of the attacking units.

25. Plan of Fire Support

a. The detailed plan of supporting fires includes all weapons used to support the attack. These may consist of ground and air delivered nuclear fires, chemical and biological agents, and nonnuclear fires.

(1) Scheduled nuclear fires are planned on forward defenses, on deeper positions that may be reached early in the attack, and on reserves that offer suitable targets. Airbursts are used in the area of penetration to achieve effective neutralization of fortifications when fallout is not desired. Surface burst weapons may be used on the flanks of the penetration when the predicted fallout will not affect operations of adjacent units and when there is reasonable assurance that elements of the attacking force will not require early use of the area.

(2) On-call nuclear fires are planned on intermediate and rear fortified belts that are not expected to be reached early in the attack. Premature nuclear attacks or rear fortified belts may reveal the plan of maneuver and permit the defender to react in strength. Care must be taken, however, to insure that the on-call fires are delivered early enough to prevent the attacking forces from losing momentum or from being unnecessarily subjected to counterattacks and deliberate defensive fires.

b. Nonnuclear fires are planned to supplement nuclear fires. Primary tasks for the indirect fire weapons are as follows:

(1) Prior to the nuclear preparation, to destroy camouflage and mines.

(2) Following nuclear fires, to maintain neutralization of the defender in critical areas.

(3) Interdiction of the movement of reserves.

(4) Counterbattery and countermortar fires.

(5) Close support of attacks on remaining defenses.

(6) Blinding defensive positions in depth or on the flanks of the penetration with smoke, and increasing attacking formations.

c. Main guns on tanks, demolition guns on combat engineer vehicles, and antitank weapons are used extensively to neutralize and destroy bunkers. Medium and heavy artillery weapons may also be employed in a direct fire role to accomplish these effects. These weapons support the assault by delivering accurate direct fires into firing embrasures of bunkers and weapon emplacements. Initially, the direct fire weapons are assigned specific embrasures and other targets to neutralize; thereafter they are employed as additional targets are located. Smoke from direct and indirect fire weapons can be used effectively to deny observation to the defender. Direct fires should be planned in detail and closely coordinated.

d. A preparatory air bombardment is not usually employed when a nuclear preparation is used. Following the nuclear preparation, close air support is used primarily to locate and destroy reinforcements, disrupt counterattacks, and attack individual bunkers that are difficult to engage by other means. Air alert aircraft are desirable to insure rapid action against any threats.

e. As in other offensive operations, the fire support plan is closely related to the scheme of maneuver. Fires are planned to destroy or neutralize known or suspected targets and to support the maneuver of the attacking echelon. In addition, fires will be planned to protect the reorganization and consolidation in the objective area.

26. Employment of Supporting Weapons

a. Mortars. The 81-mm and 4.2-inch mortars are normally employed in general support. Although mortar fires are generally ineffective against well-constructed and permanent fortifications, they provide good results when used extensively against counterattacks, against personnel in open emplacements, and in smoking selected enemy positions.

b. Davy Crockett. The Davy Crockett is normally employed in general support. Primary targets are massed enemy personnel. However, the weapon can be used effectively against mortar or artillery positions, groups of vehicles, personnel who occupy forward defensive and outpost positions, command posts, or logistical installations. Generally, targets are selected which are vulnerable to the effects of the weapon, and whose destruction or neutralization is critical to the commander's plan of attack. On occasion, the section or its individual squads may be employed in a restricted form of direct support of a rifle company(ies). This restricted form is applicable when using nuclear warheads. When employed in this manner, and in contrast to the use of other weapons in a direct support mission, the Davy Crockett will be fired *only* on approval of the battalion commander and is neither authorized nor required to answer directly the supported unit's requests for fire. However, displacement will be made by the section or squad leader as required to meet the needs of the supported unit. Because of the importance of the section to the battalion as a whole, the battalion commander will normally require the rifle company being directly supported to provide adequate close-in protection of the Davy Crockett element(s).

c. Artillery. Artillery indirect or direct fire may be used in conjunction with other direct fire to neutralize or destroy enemy fortifications. Self-propelled medium and heavy artillery are most effective for this purpose. These weapons support the assault by delivering extremely accurate fires into embrasures or weapons emplacements, and by destroying walls or bunkers. For example, the concrete-piercing rounds of the 155-mm and 8-inch howitzers, respectively, can penetrate 91.44 centimeters (one yard) and 142.24 centimeters of concrete at a range of 2,700 meters.

d. Antitank Weapons. The fires of recoilless rifles, antitank rockets, and antitank guided missiles are integrated into the fire support plan to assist tanks and artillery in the neutralization of bunkers during the assault. The battalion antitank platoon is usually retained under battalion control

for greater flexibility in engaging stubborn and previously undetected weapons, and against counterattacks. Squads of the platoon may also be attached to rifle companies when an armor threat can be anticipated, when the terrain restricts maneuver of the antitank weapons, or when the fires can be more readily controlled through attachment. The 106-mm recoilless rifle is highly effective as a bunker assault weapon because of its accuracy in firing shells into stepped embrasures.

e. Tanks. Tank-infantry-engineer task forces are usually formed for the attack of a fortified area. A platoon or more of tanks may be attached to attacking rifle companies. All tanks support the attack by firing at the embrasures of specified bunkers in prescribed sequence. Once the antitank obstacles have been breached, those tanks attached to the attacking echelon follow quickly and join in the continuation of the attack. Tanks remaining under battalion control may provide additional fire support from hull-defilade positions, or may be assigned to the reserve for antitank protection to the flanks and rear. For details of employment, see FM 17-1.

(1) When attached to rifle companies, tanks are initially retained under company control and their fires are integrated into the company fire plan. Provision may be made for the tanks to be further attached to rifle platoons for continuation of the attack after obstacles have been breached.

(2) The tank dozers may be used to assist in reducing obstacles, especially in the initial phase of the attack. As soon as assault elements close on each fortification, the tank dozers are moved forward to be available to cover fortification openings with dirt. This is an effective way to immobilize enemy troops who refuse to surrender.

f. Flamethrowers. Both portable and mechanized flamethrowers may be used to support the assault teams by reducing fortifications and providing close-in protection; they may also be used for mopping-up tasks after fortifications have been breached (figs. 6 and 7). Because of their limited range, mechanized as well as portable flamethrowers operate in the same location with the attacking elements; they are usually attached to attacking rifle companies. The division support command or supporting Chemical Corps units provided by corps or army will assist in the loading of flame-



Figure 6. Portable flamethrowers in action.

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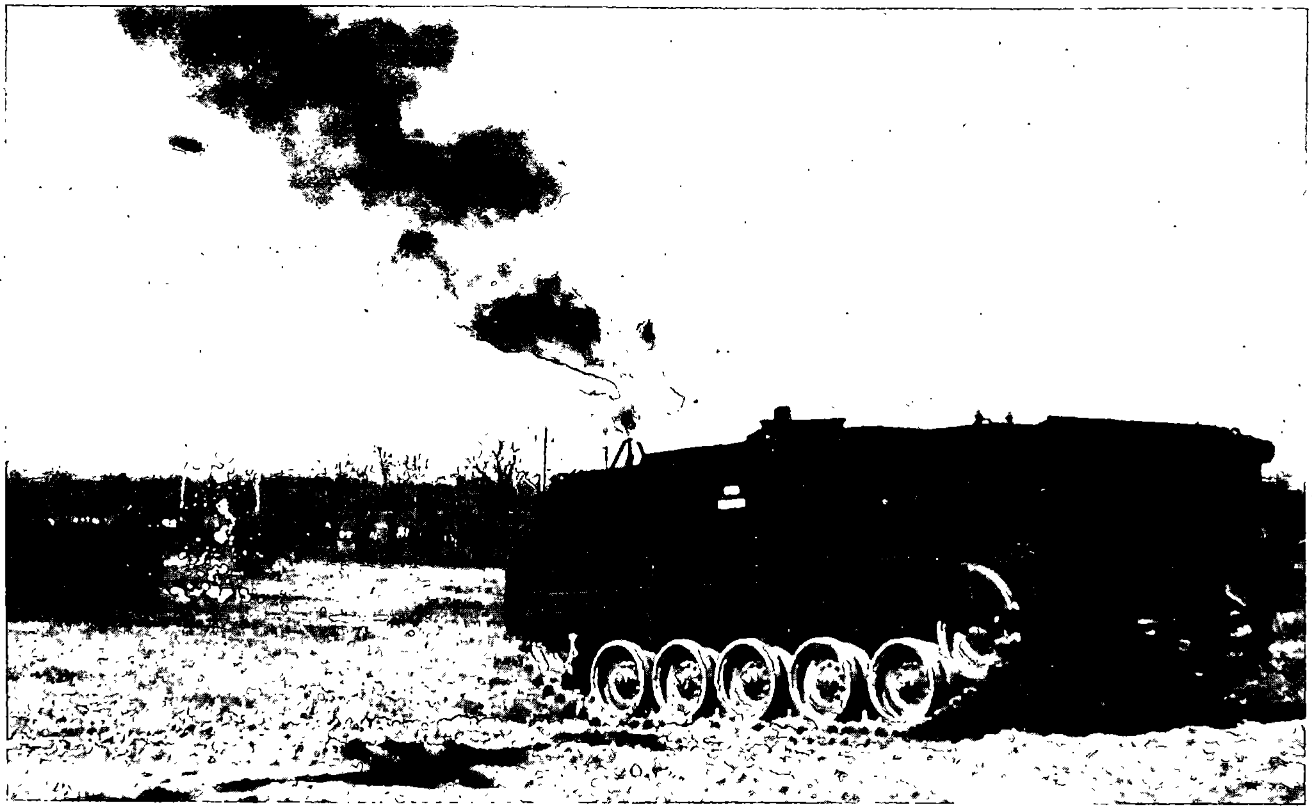


Figure 7. M10 flame unit firing from an M113 armored personnel carrier.

throwers. Although it is difficult to pinpoint targets for flamethrowers at night, use of flame weapons at night should nevertheless be considered for their psychological as well as destructive effect on the enemy (FM 7-10).

g. Nuclear Weapons. Nuclear weapons may be employed to create gaps or isolate sections of fortified areas. Depending on the predicted nuclear effects, the number of units in the attacking echelon may be reduced, deeper objectives may be assigned, and fortifications may be attacked and destroyed more rapidly when nuclear weapons are used.

(1) The effects of radiological contamination will require evaluation of possible interference with the operations of friendly maneuver elements and careful coordination with adjacent forces. Disposition of forward forces may have to be adjusted for troop safety prior to the use of nuclear weapons.

(2) To exploit the destructive effects of nuclear weapons, it is usually desirable to follow their employment immediately with a ground attack. Airburst avoids extensive radiological contamination of the area of operations. Low airbursts may be more effective against well-constructed fortifications, but may produce tactically significant induced radiation in the vicinity of ground zero. Collateral effects such as fires; reduced visibility, from smoke and dust; blowdown; and displaced rubble and debris may prevent immediate exploitation. Well-constructed fortifications are relatively less vulnerable to airburst nuclear weapons; thus surface bursts may be required to achieve the desired level of destruction.

h. Smoke. Smoke delivered by artillery and mortars, or by chemical smoke generator units, may be used as a screen to

cover the movement of troops; to screen one or both flanks of a gap, such as might be created by unequal advance of units; to screen an. area outside of the immediate action; or to blind observation posts and fortifications that cannot be neutralized by other weapons. Even if the attack is made during darkness, smoke may be valuable to counter enemy use of illuminating flares and night vision devices and shells. The use of smoke must be coordinated to insure that it will not interfere with direct fires on fortifications or with ground observation by the attacking echelon. If wind conditions are favorable, every effort must be made to blind fortifications that can support those being attacked.

i. Toxic Chemical Agents. Nonpersistent chemical agents (examples: GB from bursting-type munitions near the target and CS from M4 dispensers) will project a portion of the toxic cloud into the fortifications. Direct hits are not required. Individual fortifications may be attacked as point targets, or nonpersistent chemical agents may be used on the entire fortified area. Persistent chemical agents (for example, HD or VX) can be used against enemy strongpoints that are bypassed and need not be occupied immediately by friendly forces.

27. Engineers

During preparation for an attack, engineers conduct thorough technical reconnaissance to determine types and depth of enemy obstacles and minefields and recommend the locations where enemy barriers will be breached. They assist in preparing demolitions and in training infantry units in the use of explosives. Priority engineer tasks during an attack include assisting in the breaching of obstacles, destroying captured bunkers, and maintaining or preparing routes of advance for combat vehicles. The demolition guns of combat engineer vehicles (fig. 8) may be effective for neutralization or reduction of enemy installations and fortifications. Combat engineer vehicles may be assigned to attack enemy targets which otherwise would require the use of infantry-engineer assault troops on foot. Tank dozers may also be used in lieu of combat engineer vehicles.

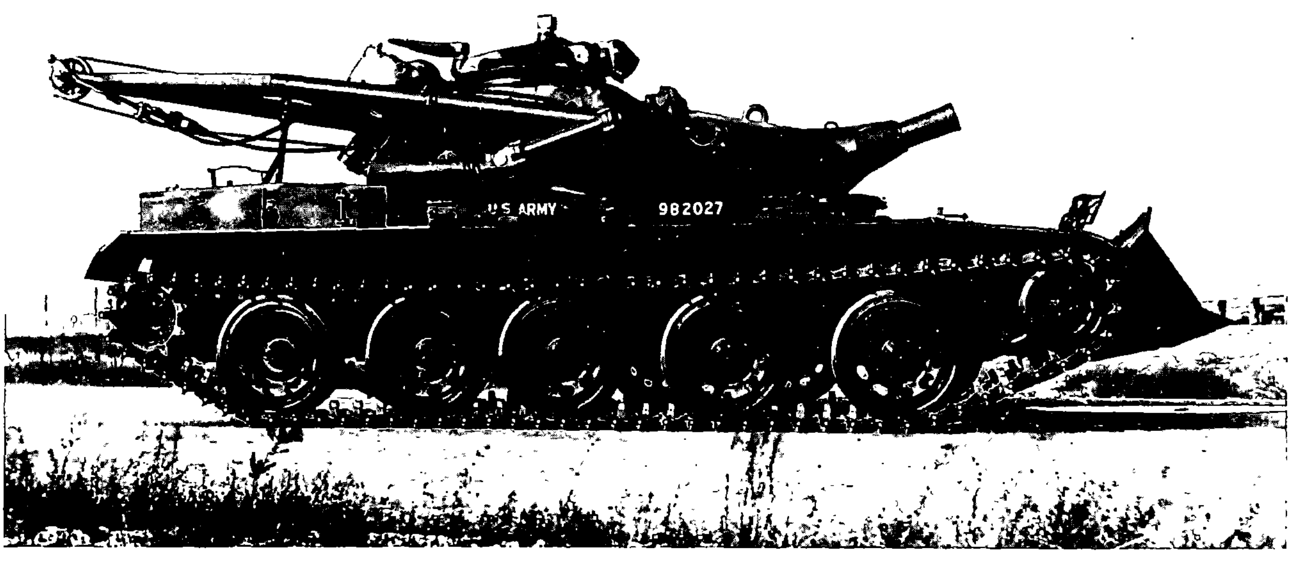


Figure 8. Combat engineer vehicle.

28. General

a. At battalion and higher levels, there is no *major* difference between the execution of an attack against a fortified area and against normal defensive positions. Some of the variations employed in the former include more frequent "leapfrogging" of subordinate units to maintain the momentum of the attack and closer control of subordinate units to insure that the highly detailed and coordinated plans are properly executed.

b. At company and platoon level, attacks against bunkers are conducted by fire and maneuver. The method of attack against an unexpectedly encountered bunker is the same as it is against a bunker located and assigned during advance planning. A portion of the force executes the maneuver while another portion acts as the fire support element. The fire support element neutralizes known or suspected enemy bunkers and other emplacements from which fires may hinder the maneuver; it may also delineate objectives and strongpoints by fire to assist supporting weapons in locating suitable targets. The maneuver element advances under the cover of supporting fires to a position from which it can destroy the enemy with grenades, explosives, and an assault. The assault may be supported by special (or additional) equipment not normally carried by platoons or squads. This equipment may include flamethrowers, demolitions (pole, satchel, or shaped charges), and bangalore torpedoes.

c. If nuclear weapons are employed to support the attack, their effects are exploited rapidly by having dismounted or mounted assault troops knock out remaining defenses and hold open the gap. Armored and mechanized infantry forces, assisted by engineers, follow closely and pass through to deepen the penetration. A mounted attack against the initial defenses of a fortified area is usually not practical because of numerous antitank obstacles which impede vehicular movement.

29. Conduct of the Attack

a. The initial objective of the attacking force is the destruction and removal of enemy reconnaissance and security echelons in front of the fortified area.

b. The attack of the area usually begins with an intense air and artillery preparation and, if wind conditions are favorable, the laying of a smoke screen. During such preparation, routes are cleared of mines and obstacles to assure unimpeded progress of the attacking echelon.

c. When routes have been cleared, the assault elements advance as rapidly as possible under the cover of all available supporting weapons. Direct fire weapons engage embrasures and other openings in the fortifications. If the fortification is protected by wire obstacles, paths are cleared by wire-cutting parties, tanks, or bangalore torpedoes. When a route has been cleared, the assault groups attack, employing flame and demolitions, to knock out the enemy bunkers and kill or capture defenders in open terrain (figs. 6 and 7, and par. 23*b*). Close supporting fires are directed toward getting the assault groups into positions from which they can knock out assigned bunkers. These groups approach the bunkers from the blind side whenever possible. Fires are continued as long as troop safety will permit. Indirect fires and tank gun fires are normally shifted on orders of the rifle company commander. Machineguns—both tank and ground mounted—and other direct fire weapons lift or shift their fires when masked, after which they resume firing on order of the assault rifle platoon leader or the weapon commander. Fires of the attacking platoons are usually the last fires lifted. Prearranged visual signals (e.g., pyrotechnics) are used as required by the maneuver element commander to shift supporting fires.

d. Upon breaching the fortification, the assault group seizes the emplacement and, using grenades and portable flamethrowers, overcomes all resistance. Flank security and reserve forces move up and cover the reorganization of the attacking echelon. The attacking platoon consolidates the bunker area and takes the necessary steps to prevent captured bunkers from being reoccupied by the enemy. Elements of the

company or battalion reserves may relieve the assault platoon of this responsibility.

e. During the mop-up of the area, tanks are ready to fire on probable avenues of enemy counterattack. Tanks that have been supporting the attack by fires are moved forward to assist in this. The platoons (or newly designated assault forces) continue the attack without delay to deepen and widen the breach and complete the destruction of the fortified area. Mechanized and armored units may be committed upon penetration of the enemy's first defensive belt with the mission of seizing initially the terrain between the first and second defensive belts and subsequently the second defensive belt.

30. Conduct of the Platoon Attack

The method employed by an attacking platoon to close with and destroy an enemy position or bunker evolves from three principal tasks:

a. Task No. 1.

(1) Fire into adjacent areas, engaging previously undisclosed enemy positions which threaten the maneuver. The purpose of this task is to augment fires of the fire support elements and to neutralize enemy fire in the vicinity of the objective.

(2) Fire on enemy positions outside the bunker which threaten the maneuver of the assaulting force. This is usually accomplished by that portion of the maneuver element not engaged in neutralizing the bunker.

b. Task No. 2.

(1) Destroy or reduce to ineffectiveness the bunker under assault. The method in this task is to neutralize the bunker with grenades, demolitions, or flame and secure it until additional troops arrive to occupy or destroy the bunker.

(2) Task No. 2 is accomplished by a part of the maneuver element employing organic arms and equipment or by personnel who have been issued special equipment. Normally, this group moves to the bunker under the cover of supporting fire and stuns the defender with flame or grenades so that demolitions can be placed in the embrasures and detonated.

(3) Equipment should be so distributed that casualties will not cause the attacking force to lose the means of reducing the bunker under attack. This can be accomplished by employing two of each item of special equipment and assigning each item to a separate individual.

c. Task No. 3.

(1) Assault and kill or capture the enemy in open emplacements in the vicinity of the bunker.

(2) Task No. 3 is accomplished by a rifle squad or squads of the maneuver force. During the movement to the final coordination line, and during the execution of task No. 2, rifle squads protect personnel assigned to carry special equipment. On order it assaults the objective, killing or capturing the enemy in the vicinity of the bunker.

d. The three tasks may be accomplished by organizing the available force into three elements, or one element may be required to perform more than one task. For example, personnel armed with the automatic rifle may be required to perform task No. 1 initially and then take part in the execution of task No. 3. Riflemen, whose primary mission is the accomplishment of task No. 3, also assist in augmenting the fires of the element executing task No. 1; and certain riflemen will be prepared to take over special equipment from personnel who become casualties while executing task No. 2.

e. A typical organization of an attacking rifle platoon may be as follows:

FIRE SUPPORT ELEMENT
Platoon Sgt
Weapons Sqd (–)
MANEUVER ELEMENT
Task No. 1:
    1st Rifle Sqd
        90-mm Recoilless Rifle Team [1]

[1] Weapons squad crew-served weapons are attached to the rifle squads as the situation demands.

Task No. 2:
2d Rifle Sqd organized as follows:
TEAM ALFA
Sqd Ldr [2]
1 Team Ldr
1 AR Man
2 Bangalore Torpedo Men [3]
TEAM BRAVO
1 Team Ldr
2 Flame Gunners
2 Demolitions Men
Task No. 3:
3d Rifle Sqd
Platoon Hq
Platoon Ldr [4]
Radio-telephone Operator

31. Sequence of Accomplishment of the Three Tasks

a. The three tasks are not necessarily executed in numerical order. Variations in the method of seizing a bunker are as follows:

(1) Execute task No. 1 followed by task No. 3, then task No. 2. The attack may be conducted by neutralizing enemy fire, assaulting the enemy in open positions in the vicinity of the bunker, and seizing the bunker from the flank or rear. This method may be used against a bunker whose fires can be neutralized to the extent that the surrounding trenches and foxholes can be successfully assaulted.

(2) Execute task No. 1, followed by task No. 2, then task No. 3. In this method, the attack is conducted by neutralizing the enemy fire, assaulting the bunker, and then assaulting the enemy in open positions in the vicinity of the bunker. This method is often forced upon the attacker because the bunker covers the only logical avenue of approach.

b. To insure the success of an attack against any specific bunker, fires from all supporting enemy bunkers must be neutralized as quickly as their positions become known. When possible, mutually supporting emplacements are attacked simultaneously. Once an entry is made into a fortified area, there will be an opportunity to assault other emplacements from the flank or rear until the entire system is reduced.

[2] May be with either team.
[3] Grenadiers can accomplish this mission, then support.
[4] The platoon leader locates himself where he can best control the attack.

CHAPTER 4
DEFENSE OF A FORTIFIED AREA

Section I. General

32. General

a. The primary purpose of a fortified area is to increase the natural defensive strength of the terrain. It includes the use of towns as anchors of the fortified area. This should cause the enemy to mass and present a profitable target in committing sizeable forces and effort in the reduction of the fortified area. He thereby expends his combat power and leaves himself vulnerable to counterattack.

b. The fortified area may be prepared deliberately prior to the commencement of hostilities, or it may be developed under cover of forward defensive forces during battle. It may also be developed as a result of continued occupation and improvement of forward defensive positions during periods of enemy inactivity or stalemate. In either case, the fortified area is normally planned in detail and improved continuously.

33. Defensive Considerations

a. Any fixed defense, no matter how elaborate and well planned, can be penetrated if sufficient means are used by the attacker. Although the defender may have a great deal more protection from fires, the attacker can choose his point of attack and concentrate his efforts on the fixed defender at that point, either destroying the defender or causing him to relinquish his chosen position. The defense must, therefore, provide offensive means by which an attacker can be destroyed once he penetrates the defended area.

b. Specific considerations in the defense of a fortified area include the following:

(1) Fortified areas permit economy-of-force in forward defense areas. This releases proportionately larger forces for reserves.

(2) Reserves must have suitable mobility and be used aggressively if the defense is to be successful.

(3) Fortifications are organized in depth to provide all-around defense. Field fortifications supplement the bunkers, pillboxes, and other fortified works.

(4) The fortified area provides excellent protection for the defender and increases the effectiveness of his fires.

(5) The defense is conducted in the same manner as an area defense. Defense of a fortified area is not normally associated with the mobile defense.

c. Obstacles are an integral part of every permanent defensive installation. They are emplaced in depth and constructed in such a manner as to force the attacker to breach them in order to reach key points held by the defender. Natural obstacles are reinforced by a system of well-camouflaged concrete and steel, or log and timber structures, with weapons and apertures emplaced to cover the barriers by fire. Antitank and antipersonnel minefields; flame field expedients such as fougasse; toxic chemical agents; wire entanglements; antitank ditches; and log, post, and concrete antitank obstacles are organized into a system of barriers-in-depth to force the attacker to commit his strength against the obstacles. A deliberately planned fortified area makes the widest possible use of barriers in defensive operations. For details and illustrations, see paragraphs 6 through 11.

34. Defense in Nuclear Warfare

a. It is almost impossible to conceal an extensive fortified area for any extended period of time. By diligent intelligence efforts, an accurate picture of the fixed defenses can be developed. Although they provide a degree of protection, fortified areas can be destroyed by nuclear weapons.

b. On-call nuclear fires may be planned by the defender on likely enemy assembly areas and avenues of approach. Because the defender has a degree of protection from nuclear weapons effects in his fortified positions, nuclear fires may be planned closer to the defenses than in other situations. Counterattack plans also include the use of nuclear fires.

Section II. PLANNING

35. Organization of the Battle Area

a. The forward edge of the battle area (FEBA) is organized as a fortified belt consisting of a number of mutually supporting defense areas, or strongpoints, disposed irregularly in width and depth. Each strongpoint is organized for all-around defense with bunkers, trenches, foxholes, weapons emplacements, observation posts, connecting caves or tunnels, shelters, and obstacles. Tactical unity and integrity are maintained in each defensive area or strongpoint. Each defensive area or strongpoint is capable of supporting adjacent units by fire. Strongpoint locations are selected for the observation and fields of fire they afford and for their natural defensive strength. Their retention insures the integrity of the battle area.

(1) A fortified belt is sited to take full advantage of the terrain. The weakest terrain should be organized in greatest depth and defended by the strongest and most numerous defensive works.

(2) As in hasty defense, interlocking bands of grazing machinegun fires form the backbone of defense in a fortified belt. Weapon positions are protected from the front by terrain irregularities, and grazing fires are directed to the flank across likely routes of attacking forces. No terrain should be left entirely without protection by fire. A combination of interlocking bands of grazing fire, with high angle fires filling in the dead space, are essential to stop or repel enemy assaults. Mutual support by adjacent units and weapons is mandatory.

(3) Reserves should be highly mobile and located well back to destroy and eject enemy penetrations into the fortified area. Ideally, the depth of the fortified area should be sufficient to force the enemy artillery to displace forward during the attack. This reduces surprise effect and gains time for the reserves in the launching of a counterattack.

b. Forward brigades organize and defend the first fortified belt. Second and succeeding fortified belts are organized and prepared for the defense by reserve brigades and reserves of higher commanders. Security, forward defense, and reserve areas are organized as in an area defense.

(1) The capability of the general outpost and the combat outpost to delay the enemy is increased considerably by prepared fortifications in those areas. Strongpoints are prepared to cover natural and artificial obstacles which cause the enemy to deploy prematurely and launch coordinated attacks against lightly held forward security positions. Similar use is also made of suitable delaying positions between the general outpost line (GOPL), combat outpost LINE (COPL), and the FEBA to achieve further delay.

(2) Rifle companies of forward battalions occupy bunkers and emplacements in the forward defense area. They prepare and improve fields of fire, integrate their fires to cover the

entire area forward of the FEBA, and cover obstacles with antitank and other fires. Additional antitank weapons may be provided from the battalion antitank platoon. Some elements of the forward rifle companies may be disposed to fight from open emplacements to provide close-in protection to certain relatively "blind" bunkers. It is important that they cover by fire all entrances to bunkers. During artillery and air attack, personnel assigned to open emplacements may move to nearby covered shelters and return to their fighting positions after the fires lift.

(3) Reserve rifle companies of forward battalions may be located in concealed assembly areas or underground shelters and be prepared to move quickly for participation in counterattacks. They make maximum use of concealed or underground routes when moving to the line of departure. Reserve rifle companies must also be prepared to occupy previously prepared blocking positions to limit penetrations, prevent envelopments, or defend against enemy airborne infiltrations and guerilla attacks.

(4) Obstacles forward of the FEBA must be planned to permit efficient withdrawal of security forces through gaps, and to canalize the enemy into areas of intense defensive fires. Obstacles within the battle area must be sited to impede enemy movement but allow free movement of friendly reserves to counterattack or occupy blocking positions. Portable obstacles are also prepared for closure of gaps in the barrier system within the battle area. Extensive use is made of protective wire to prevent assault parties from closing on bunkers. Tripwires may be installed across natural avenues of approach to actuate devices to give an alarm (pars. 8–11).

36. Fire Support Planning

The fire support plan for defense of fortified areas is prepared as for other defenses; specific emphasis, however, is placed on the coordination of fires with the barrier plan. When nuclear fires are used, they may dominate the defensive fire plan. Nonnuclear fires are planned to assist in the defense of fortified positions, to assist in causing the enemy to mass his forces, to augment the effects of nuclear fires, and to cover areas where nuclear fires are not used. To the extent possible, areas most critical to the success of the enemy attack are planned as on-call nuclear targets. These areas include locations where enemy forces may be expected to concentrate; e.g., at obstacles, attack positions, assembly areas, and defiles.

a. Antitank fires are planned to engage enemy armor as soon as it comes within effective range. The battalion antitank platoon may be retained under battalion control to add depth to the antitank defense, or squads may be attached to forward rifle companies which cover enemy armor approaches. Company antitank weapons are under the control of the company commander. They may either be retained in central locations for movement to firing positions when armor threats arise, or sited within the defensive position and their fires coordinated with the other antitank weapons for employment against tanks and assault guns. Platoon antitank weapons are normally located in open emplacements for employment in antitank and antipersonnel roles. Company and higher unit antitank weapons are not normally employed in an anti-personnel role.

b. Tanks are normally a part of the reserve for employment in counter-attacks. However, when numerous armor approaches exist, some of the available tanks may be attached to forward rifle companies to cover critical avenues of approach from dug-in positions.

37. Communications

Permanent fortifications, and to a lesser extent field fortifications, have dependable wire communication systems that reduce the

need for radio. This assures greater communication security and reliability. Communication wire is buried deep enough to minimize damage from nuclear and nonnuclear explosive fires and bombing. Alternate lines are installed. Interconnecting trenches and underground passageways between individual bunkers provide covered routes for messengers. Command posts may be equipped with teletypewriter and television equipment; observation posts may contain radar and television transmitters. Tactical deception operations may be conducted utilizing communication equipment, radio nets, and other electronic means. Installations within an area are provided with intercommunication systems. Radio supplements the wire system. For additional information on communication, see FM's of the 7- and 17-series and FM 61-100.

Section III. CONDUCT OF THE DEFENSE

38. General

The conduct of the defense of a fortified area is similar to that for a normal area defense. See FM's 7-11, 7-15, 7-20, 7-30, and 61-100 for details.

39. Conduct of the Defense

a. Unless deception is an essential element of the defense, the enemy is taken under long range fire—including nuclear fires and toxic chemical agents (if appropriate)—as early as possible. Tactical air support is used to locate and warn of the enemy's approach, to interfere with his advance, and to engage him well forward of the fortified area. Actions taken by covering forces and general and combat outposts are similar to those for the area defense.

b. After accomplishing their missions, or when necessary to prevent their capture or destruction, security forces withdraw through forward elements to the rear, fighting a delaying action to inflict maximum casualties on the enemy. Long range fires are placed on the enemy to cover the withdrawal. Obstacles cause the enemy to mass or deploy prematurely; direct and indirect fires are employed to inflict casualties. If enemy tanks are employed, all available fires are delivered to force tanks to button up, and to separate infantry from tank elements, thereby facilitating their destruction. Nuclear weapons may be used as appropriate, and antitank mines and available tactical air support are used to the maximum. Artillery and mortar fires, to include chemical agents, may be used on tanks and other weapons to blind or destroy the crews and destroy accompanying infantry. Special efforts are made early to locate and destroy enemy demolitions and flamethrower teams. If the enemy succeeds in launching an assault, final protective fires and all other available fires are placed on him.

c. If the enemy penetrates the battle area, mobile reserves counterattack to destroy him and to recapture specific bunkers. Blocking positions are not normally required since bunker defense-in-depth accomplishes this purpose. Counterattacks are infrequently conducted at company level.

PART TWO
COMBAT IN BUILT-UP AREAS

CHAPTER 5
GENERAL

40. Definitions

a. A built-up area is any group of buildings designed for habitation or commercial purposes, such as a village, town, or city.

b. Block-type construction is that type construction in which few or no gaps exist between buildings; e.g., business districts of large towns or cities.

c. Detached-or semidetached-building areas are areas of towns or cities in which the buildings are spaced relatively close together; e.g., residential areas with a high density of individual and duplex buildings.

d. Isolated housing areas include villages, hamlets, suburban houses, or other small clusters of buildings which are surrounded by large, open areas.

e. Critical areas are those areas in a built-up area that may require special coordination and effort to overcome. Open areas between buildings, superhighways, avenues, railroads, and other terrain features which provide the enemy an advantage in observation and fire may become critical areas. Buildings bordering these terrain features are included in the critical area.

f. A key building is a structure which contains an important governmental agency or public utility or is one of distinct cultural, political, or historical value. City halls, telephone exchanges, telegraph offices, waterworks, transportation facilities, hospitals, museums, and cathedrals are examples of key buildings. Plans for seizure of such buildings should provide for minimum damage to the facilities housed therein.

41. Tactical Considerations

a. Built-up areas may become battle areas because their locations control routes of movement or because they contain valuable industrial or political installations. If any enemy in a built-up area chooses to defend-in-force, it may be preferable to bypass or destroy the area rather than become engaged in the time-consuming and tedious task of seizing it from him. Such an attack might expose the attacker to the risk of having a large part of his force destroyed by nuclear, chemical, or biological weapons. If, however, the built-up area is critical to the attacker, the commander may be required to accept this risk.

b. Buildings in a built-up area interfere with radio communications. Thus wire communications and foot messengers frequently will be the only effective means of communications.

c. Because of the restrictions on communications and observation, control is difficult and is normally decentralized.

d. Direct fire weapons, which must be well forward, are more frequently attached to companies and platoons than in other operations.

e. The decisions and initiative of small unit leaders assume added importance.

f. Sound, magnified and echoed between closely spaced buildings, makes it difficult to locate enemy weapons. Dust caused by the impact of projectiles and by explosive charges, together with the smoke from fires, adds to the difficulty of observation and location of hostile weapons.

g. The nature of combat in built-up areas may vary, based on the type of construction and the location of buildings?

(1) On the outskirts of built-up areas or cities, isolated houses or small groups of houses are found surrounded by small plots of land, gardens, farms, fields, or vacant lots. When this part of the city is attacked, the houses should be treated as inferior pillboxes or individual emplacements, and the plan of attack may be no different from that used over normal terrain where an occasional fortification is encountered.

(2) In the residential district, buildings are more closely spaced and are usually flanked by streets on one side and by gardens or grassy plots on the other. The general layout may or may not follow some geometrical pattern. The type of attack to be used in this area may vary and will depend upon the density of the buildings. A modified form of street fighting probably will be used, but basic offensive techniques generally will remain the same.

(3) The center of the built-up area usually is the business section and it normally will consist of buildings of block-type construction with little or no space between buildings, except for an occasional park, street, or alley. This type of construction will require fighting from building to building and block to block.

h. Under certain conditions, psychological warfare can contribute significantly to the accomplishment of the mission (FM 33–5).

42. Intelligence

a. Planning. Difficulties of control inherent to operations in built-up areas can be partially offset by detailed planning. Such plans require detailed information concerning the enemy and his defenses, a layout of the built-up area, and information on the nature of the surrounding terrain. These plans should be based on the most current and complete intelligence available. Production of the required intelligence follows the procedures discussed in FM 30–5.

b. Military Aspects of the Terrain in Built-up Areas.

(1) *Observation and fire.* Observation and fields of fire are restricted to the narrow lanes provided by streets and alleys. Observation is further restricted by the use of smoke, and by dust and smoke created during the fighting. Because of these restrictions, increased importance is placed on seizing and securing the taller buildings and structures for use as observation posts. The rubble and debris created by destruction of buildings will severely restrict existing fields of fire and increase the vulnerability of tanks and other vehicles to ambush.

(2) *Concealment and cover.* Built-up areas offer excellent concealment and cover for both the attacker and defender. But the defender has an important advantage in that the attacker must expose himself to move through the built-up area. The defender can increase his advantage when he can select defensive positions in well-constructed buildings with good fields of fire. The effectiveness of the cover depends upon both the density of the buildings and the nature of their construction. Buildings constructed of flammable materials are easily burned and may prove to be traps for troops using them. Stone or masonry buildings with thick walls offer excellent cover even when bombardment has reduced them to rubble. Buildings with basements or two or more stories offer good overhead cover.

(3) *Obstacles.* Buildings set close together in geometric patterns present obstacles to both men and vehicles. This is particularly true in areas of block-type construction. Streets are relatively easy to barricade and cover with fire, thereby adding effectiveness to the obstacles Rubble can be used to construct obstacles. Obstacles may be created

through the use of air, artillery, direct fire weapons, and explosives.

(4) *Key terrain.* Key terrain in built-up areas includes strongly constructed buildings, or groups of buildings, which cover good avenues of approach; bridges; and hubs of underground sewage and subway systems.

(5) *Avenues of approach.* Often the best avenue of approach, in terms of concealment and cover, is through existing buildings. Other avenues of approach are restricted to streets, alleys, and underground sewage and subway systems.

(6) *Movement.* In areas of block-type construction, movement is difficult for both men and vehicles. Streets and alleys invite movement but constitute readymade fire lanes and killing zones. For this reason, dismounted troops frequently are forced to breach walls, move through buildings, or move through open areas under the cover of smoke or darkness. Underground sewage systems, subways, or multistoried buildings may permit limited movement either below or above ground level. Vehicles are restricted to movement through streets and alleys where they are subject to ambush.

c. Sources of Information.

(1) United States produced or captured city maps, large-scale topographic maps, city plans, standard travel booklets, and related intelligence materials of varied scope and detail are normally available from intelligence and engineer sources. This material, supplemented by recent aerial photography and other combat intelligence sources, should provide the required information on terrain, types of building construction, transportation facilities, public facilities, and other important features.

(2) The intelligence officer should be alert to gain information, before and during the attack, from prisoners of war, civilians, police, and utilities employees concerning unusual features of the area such as the layout of sewers and underground conduits, and vantage points for observation.

d. Reconnaissance.

(1) All forms of reconnaissance are exploited to secure information required by commanders. Air reconnaissance begins early in the planning to determine the enemy's location, disposition, and activity. Maximum use of aerial photography is made to detect subsequent changes in the enemy situation. This reconnaissance is conducted by both Air Force and Army aircraft, and is continued during the operation in the built-up area.

(2) Ground reconnaissance is initiated as soon as practicable after receipt of orders directing operations in the built-up area. The enemy's battle position and activity are kept under constant visual and electronic surveillance. Patrolling is conducted at all echelons and coordinated to determine the location of enemy strongpoints, obstacles, weapons positions, and reserves.

43. Fire Support

a. Poor observation, with its resulting limitations on adjustment of fire, and the proximity of friendly and enemy forces in contact make close support by artillery and tactical air difficult. High angle-of-fire weapons, such as mortars, may be able to place fires into the area of defilade between buildings. Delay fuzes may be used more frequently to permit projectiles to penetrate roofs and upper floors before exploding. Mortar smoke rounds fired in conjunction with high explosive rounds have an adverse psychological effect on enemy personnel, and if there is sufficient litter, refuse, or rubble, they can cause fires. Direct fire weapons normally provide the bulk of close fire support.

b. If nuclear fires are planned, their effectiveness may be increased by utilizing chemical or biological weapons on the periphery of the target after the nuclear burst. Chemical

and biological weapons should not be used before the nuclear detonation except when the agent characteristics, such as incubation time, delay in casualty production, or delivery means, so dictate.

c. Limitations may be imposed on the use of nuclear weapons because of casualties which would be inflicted on civilian populations, especially in friendly territory. In such situations, incapacitating chemical and biological agents are ideally suited for integration with conventional fire support. The limitations of these weapons systems must also be carefully considered. Biological weapons present the greatest limitations because of friendly troop safety considerations and the delay in casualty production.

d. Frequently, built-up areas will contain installations and facilities—such as power and water stations, railroad yards, and key buildings—which must remain intact, if possible, for subsequent use by the friendly forces and the civilian population. Plans must be made to protect these installations from friendly fire and to prevent the enemy from destroying them. Plans must also be made to destroy designated facilities prior to enemy capture.

e. The use of portable or mechanized flamethrowers or other incendiaries may be the quickest and most economical method of dislodging a defender from a building. However, the attacker must use these weapons carefully, considering the possibility of creating obstacles to his own advance or hindering the maneuver of higher or adjacent units.

44. Security

Basements, underground passages, and upper floors create a requirement for security above and below, as well as to the front, flanks, and rear. The attacker frequently attempts to enter buildings from upper floors and roofs while the defender makes every effort to guard these approaches.

45. Night Operations

Movement outside of buildings during daylight is greatly restricted; therefore, much of the fighting in built-up areas will take place at night. Under cover of darkness, streets can be crossed more safely and small parties can infiltrate between defended areas or defended buildings. These patrols can learn the location of enemy weapons, reserves, and obstacles; place explosive charges; and eliminate enemy positions. While large-scale night operations are avoided, small, local night attacks may be used to position troops for daylight operations, secure buildings or areas required for continued offensive operations, and eliminate enemy strongpoints. The psychological effect of noise and fire at night should also be considered.

46. Looting

Built-up areas present many opportunities for looting. As men acquire loot, they discard needed equipment which results in an overall loss of combat efficiency. No matter how well-trained or well-disciplined a unit may be, troops will loot unless precautions are taken in advance. Looting detracts from the soldier's alertness, increases his vulnerability and that of his unit, reduces his initiative and efficiency, and may delay the progress of the attack. Looting also alienates the population. All leaders must insure that orders against looting are obeyed and that violators are promptly and appropriately punished.

47. Control of Civilians

a. The problem of controlling and administering civilians usually accompanies fighting in built-up areas. A population swollen by refugees will further complicate the problem. In friendly territory, cooperation can be expected from the local civil authorities. In enemy territory, both friendly and hostile elements may be present. Friendly local authorities should be used to control the civilian population whenever possible. Circulation and movement of noncombatants is restricted and is regulated. The decision to evacuate civilians from a built-up area is normally made at the highest command level, since refugee traffic within the battle area may interfere with the operations of other friendly units. Loudspeakers and leaflets can be used to facilitate issuance of orders and instructions necessary for control of the civilian population. Psychological warfare equipment and trained personnel to operate it are available upon request from supporting psychological warfare units. Civilians may be used in the preparation of defensive positions and other labor projects.

b. A civil affairs group composed of various civil affairs teams, depending upon the size of the built-up area, may be assigned or attached to a unit to administer the built-up area until a fully effective type of civil government can be reestablished. Without such support, units will not be able to handle the civil problems and at the same time effectively conduct combat operations. Where friendly or effective local government organization exists, it is used to assist civil affairs units. Assignment to units normally ceases upon clearance of the area, after which the group normally comes under the control of a higher headquarters. See FM 41-5 and FM 41-10 for detailed procedures.

CHAPTER 6
ATTACK OF A BUILT-UP AREA

Section I. GENERAL

48. General

The ultimate mission of a unit attacking a built-up area is to seize and clear the entire area. Any tasks, objectives, or other requirements which will detract from the accomplishment of this mission should not be assigned to an attacking unit.

49. Tactical Considerations

a. Characteristics of built-up areas that are favorable to the attacker are as follows:

(1) The attacker has the advantage of maneuver in isolating the town or city to be seized. Once the isolation has been completed, the attacker is in a position either to press the attack or to contain the defender and force him to capitulate.

(2) The attacker may select his point of entry into the built-up area. The attack may be conducted from any direction, or from more than one direction.

(3) The attacker may be able to obtain a detailed plan of the built-up area to aid in planning his attack. Defectors or civilians may provide information to the attacker.

(4) The attacker may be able to bypass strongly defended buildings by going under them, using cellars, sewers, subways, or other underground passages. Other strongly held defensive positions may be bypassed by attacking over the roofs of buildings.

b. Each building and block in a built-up area may be a potential fort, since they provide such concealment that the attacker may be unable to determine which is strongly defended and which is lightly held. Under such conditions, the attacker is compelled to undertake a systematic clearance of the area, building by building and block by block (par. 42*b*).

50. Phases of the Attack

a. The attack of a built-up area may be divided into three phases.

(1) *Phase I* is designed to isolate the area by seizing terrain features dominating the approaches to it. Enemy defenses or terrain obstacles may prevent complete isolation. As a minimum, the attacker must secure positions outside the built-up area from which he can support the entrance to it and the step-by-step capture of the objective. This phase of the attack is planned and conducted in a manner similar to other attacks. See FM's of the 7- and 17-series.

(2) *Phase II* consists of the advance to the edge of the built-up area and the seizure of a foothold in buildings on its near edge. The accomplishment of this phase reduces or eliminates the defender's ground observation and direct fires on the approaches to the town. The attacker uses the cover and concealment in the foothold area to displace weapons and to commence his systematic clearing of the area. Planning and conduct of this phase are much the same as for other attacks of strong defensive positions. An attack against an area of strong masonry buildings that have been extensively prepared may assume many of the characteristics of an attack on a fortified position.

(3) *Phase III* consists of the advance through the built-up area to clear it of the enemy. During this phase,



Figure 9. A lone infantryman advances rapidly in a built-up area to avoid enemy sniper fire.

the attack assumes more specialized characteristics. Planning of this phase is carried out in considerable detail to offset the difficulties of control. The attack is characterized by semi-independent action of small units to accomplish the methodical clearance of assigned zones. This phase of the attack ends when the entire area is cleared.

b. Phase I may be accomplished concurrently with phases II and III. There should be no pause following completion of phase II. Units should move rapidly to deepen the penetration before the defender can react. As the planning and conduct of phase I is similar to other ground attacks, the remainder of the discussion in this chapter is devoted to phase II, seizure of a foothold, and phase III, clearance of the built-up area.

Section II. PLANNING

51. General

a. Plans for the attack of a well-defended, built-up area must be based upon a detailed study of the city as well as the enemy dispositions in and around it. As in any other attack, planning must provide for a scheme of maneuver and a plan of fire support. Both are developed concurrently and must be closely integrated. The plan of attack also covers the essential details of security, combat service support, and the establishment of the communication system necessary for control.

b. In an attack of a larger built-up area, one or more brigades may be in the attacking echelon. In this case, a battalion may be assigned a mission of sealing and isolating the objective, of seizing a foothold, or of clearing all or a portion of the built-up area; but

it will normally participate in only one phase at a time. The battalion may undertake the seizure of smaller built-up areas independently; in this case, it will be required to maintain isolation of the town while clearing it. Combined arms company teams may be required to carry out similar actions in the attack of isolated housing areas. In relatively small, built-up areas, combined arms teams of battalion or company size may accomplish the entire maneuver mission independently.

c. The attack is planned in three phases:

(1) To isolate the city.

(2) To gain a foothold near the edge of the city.

(3) To systematically reduce and seize control of the entire area.

52. Intelligence

The scheme of maneuver is based on a careful study of available intelligence. Intelligence requirements are established early in the planning, and all available agencies and sources are exploited in an effort to provide the commander with essential elements of information and other intelligence requirements. Emphasis is placed on collecting information of the following:

a. Location of covered approaches to the built-up area.

b. Location of public utilities.

c. Location and nature of obstacles and prepared defensive positions.

d. Location, strength, and composition of enemy reserves.

e. Location and types of enemy weapons positions and command and observation posts.

53. Control Measures

As communication and observation are restricted and control is difficult in the attack of a built-up area, more restrictive control measures are usually prescribed in the attack order.

a. Objectives. Objectives are relatively shallow. In phase II (seizure of a foothold), the battalion normally assigns companies the first block of buildings as intermediate objectives. When an objective extends to a street, only the near side of the street is included. The final objective is the far edge of the built-up area. Key buildings or groups of buildings also may be assigned as intermediate objectives. The numbering of the buildings along the route of attack facilitates the assignment of objectives and simplifies reports of their seizure. To bypass buildings would be to risk being attacked from the rear. It is necessary to enter and search each building during the progress of the attack. Buildings will be assigned as objectives for rifle squads and, if the buildings are large, for rifle platoons.

b. Phase Lines. Phase lines may be employed to enhance control by regulating the advance of attacking forces. Phase lines may be used in lieu of objectives. Principal streets, rivers, and trolley and railroad lines are appropriate for use as phase lines.

c. Zones of Action and Boundaries. These are used at division and lower levels. In areas of semidetached construction where observation and movement are less restricted, boundaries within brigades, battalions, and companies are normally established in the alleys or within the blocks so that both sides of the street are included in one unit's zone. However, in the denser portions of the built-up area, which contain block-type construction, boundaries are placed along one side of the street with the street inclusive to one unit. In addition to assigning zones of action, the attack order normally specifies that zones are to be cleared of the enemy.

d. Checkpoints and Contact Points. Street corners, buildings, railway crossings, bridges, or any easily identifiable feature may be designated as checkpoints or contact points. These points, respectively, facilitate reporting of locations and serve as specific points where the commander desires units to make physical contact.

e. Time of Attack. In phase II, when extensive open areas must be crossed to get to the buildings on the near edge, the attack may be scheduled for the last hours of darkness in order to provide concealment for the assault troops. Small parties take advantage of darkness to cross streets and other open areas, to gain rooftops, to infiltrate enemy defensive areas, and to gain positions from which to launch or support an attack during daylight.

f. Attack Positions. In phase II, when a coordinated attack is required, units in the leading echelon may occupy attack positions in which they accomplish last minute preparation and coordination. The requirement

for a coordinated attack may arise when the edge of the built-up area is abrupt and overlooks large open areas. In order to preserve secrecy and enhance chances for surprise, attacking troops should remain in the attack position only as long as final preparations require. Whenever possible, they occupy and leave the attack position during darkness.

54. Formations

The formation to be adopted depends on the width and depth of the zone to be cleared, the character of the area, enemy resistance, and the formation adopted by the next higher command. Normally, the formation of the battalion will provide for two companies in the attacking echelon. Consideration should be given to leading the phase II assault with tanks when available.

55. Frontages

The frontages assigned to units for the attack of a built-up area will depend upon the enemy strength, size of buildings, and resistance anticipated. Frontages assigned to units must be commensurate with their capabilities. As a guide only, in block-type construction (usually the most difficult portion of a built-up area), a rifle company's capability is one city block.

56. Main and Supporting Attacks

In built-up areas, the main attack may be directed toward the capture of a critical area. When the terrain or characteristics of the area offer equal advantages to attacking units, or when enemy forces are estimated to be uniform, a main attack need not be designated. This is normally the case at company level. The commander may attack initially with equal forces and, based on the situation during the attack, weight the element which achieves greater success or which develops an advantage.

57. Reserves

a. Reserves are employed much the same as in other attacks. They are kept somewhat closer to the attacking echelon; however, because restricted routes of movement may increase the time required for their commitment to action. Concealment and cover in the built-up area favor positioning of the reserve closely behind the attacking echelon. The reserves displace on order.

b. As few or no gaps will exist between attacking units, commitment of the reserve to the attack usually involves a passage of lines or a relief in place. Reserves may be employed on one or more of the following missions:

(1) An attack to exploit a temporary or newly discovered enemy weakness.
(2) The assumption of the mission of an attacking element that has become ineffective.
(3) The reduction of enemy resistance that may have been bypassed by the attacking echelon or may have subsequently developed to the rear of the attacking echelon.
(4) Protection of the flanks and rear.
(5) Maintenance of contact with adjacent units.
(6) The assistance of adjacent units when directed by higher headquarters or when such action favors the accomplishment of the parent unit's mission.

58. Fire Support Plan

a. Extensive air and artillery bombardment may precede the ground attack of a built-up area. Incendiary attacks may be particularly effective; however, the attacker should use them carefully since the resulting fires may become an obstacle to his advance. Short of complete saturation of a small area, air and artillery bombardment of built-up areas with extensive masonry construction can do little more than restrict the movement and lower the fighting efficiency of enemy troops through repeated shock and concussion. Difficult house-to-house fighting must still be expected. The rubble and debris resulting from air and artillery attack may also provide increased cover for the enemy while creating obstacles for friendly tanks.

b. During phase II, supporting fires are directed toward neutralizing enemy observation and weapons while the attacking echelon moves to the buildings at the near edge of the town. Artillery and mortars are most effectively employed against enemy observation

and in counterbattery fires. Airburst fire is effective against rooftop observation posts while smoke may be used to restrict observation at lower levels. High explosive (HE) shells with delay fuzes may be effective against troops in the upper floors of buildings, but they will have little effect on occupants of lower floors. Direct fire weapons, including tanks, antitank guided missiles, recoilless weapons, and machineguns, are employed to provide neutralizing fires against known and suspected positions in the near-edge buildings. Employment of direct fires in this phase of the attack may closely resemble that of the attack of a fortified position.

c. Close support fires during phase III must be provided primarily by direct fire weapons. These weapons must be placed well forward with the attacking troops. Rifle grenades or grenade launchers and small mortars employed well forward will be particularly effective. Extensive use should be made of smoke to blind the defender's forward weapon positions and enable attacking small units to cross open areas and approach close to windows and doorways. Tear gas and field protective masks should be used whenever they will give assaulting groups an advantage inside buildings. Armored personnel carriers should be used to move troops from building to building where open areas are covered by small-arms, machinegun, and high-explosive fire. They should be accompanied by tanks to protect them from heavy, direct fire weapons. Control is decentralized. The effectiveness of mortars and artillery is limited by restricted observation, overhead cover for enemy troops, proximity of friendly and enemy troops, and the accompanying requirement for pinpoint accuracy. Both mortars and artillery can be used to an advantage in maintaining interdiction of routes and restricting movement within and to the rear of the enemy position.

d. Portable and mechanized flamethrowers, self-propelled artillery, and combat engineer vehicles are of great value in reducing individual buildings and fortified positions. Provisions for support by these weapons must be made prior to the attack. Control is usually retained at battalion level. The weapons are assigned specific missions in advance, in prescribed sequence, or may be released to subordinate units for specific missions or on prearranged schedule.

59. Communication Plan

The communication plan should provide for use of wire and radio down to rifle platoon level. Laying wire lines through buildings instead of along streets helps to protect them from shellfire and tracked vehicles. Since radio communication may be greatly restricted by the surrounding buildings, and wire lines may frequently be broken by falling buildings, shellfire or other causes, small units should plan to use foot messengers. Since tank units depend heavily on radio communication, special measures are required to maintain communication within them and between separated elements of the combined arms formation. Radio communication can be enhanced by operating sets from the highest possible locations (rooftops or upper stories) and by the relaying of messages by other stations, including radio relay by Army aircraft. Rooftops and upper stories also provide opportunity to use visual signals to indicate the need for fire, the shifting and lifting of fires, and/or to announce the seizure of a building or group of buildings. Armored personnel carriers or tanks may be used to provide mobile, protected communication centers.

60. Logistical Support

a. The expenditure of large amounts of ammunition is common in attacks of built-up areas; therefore, ammunition distributing points should be well forward. Commanders should plan for early resupply of demolitions, grenades, flame fuel, and small arms and tank ammunition. Mobile distributing points may be required down to company team level. Consideration should be given to the use of armored personnel carriers and hand-carrying parties to resupply the attacking echelon. Aerial resupply of prepackaged sling loads by helicopter provides a fast means of resupply.

b. The logistical plan should provide for special equipment to be available early in the planning for rehearsal purposes. Examples of these items are flamethrowers, toggle ropes, and grappling hooks.

c. The evacuation of wounded from rooftops and upper stories of buildings will be

difficult and may require additional litter bearers and the use of special evacuation equipment. Debris may prevent ambulances from moving into some areas. Plans should include the marking of buildings which contain wounded personnel.

61. Security

Due to the close proximity of opposing forces and the excellent concealment and cover available to the defender, security during the attack will present a particular problem. All units must be alert to an enemy who may be located above or below or to the flanks and rear. The battalion reconnaissance (armored cavalry) platoon and reserve units may be given a mission of protecting the flanks and rear and of screening the areas behind the attacking company teams.

62. Employment of Organic and Supporting Weapons

a. Machineguns. Machineguns are employed initially to provide covering fire during the attack to seize a foothold in the area. When a foothold is secured, these weapons are quickly moved into the built-up area and are kept well forward where they can provide supporting fire for the attacking echelon. Machineguns fire grazing fire down streets and alleys and across open areas. These fires destroy any enemy driven into the open and prevent the enemy from using streets, alleys, and open areas as routes for supply, reinforcement, or maneuver.

b. Recoilless Rifles and Antitank Rockets. These weapons provide antitank protection and may be used to blast holes in walls and knock out enemy strongpoints. They are well adapted to combat in built-up areas because of their light weight, versatility, and penetrating power. They cannot be fired from within rooms, however, unless provisions are made for the escape of the backblast. Recoilless rifles move into the fringe of the built-up area with the lead elements. During the attack within the built-up area, they are moved with or directly behind the assault platoons to be readily available to fire on targets of opportunity. If obstacles within the built-up area do not restrict the movement of vehicular-mounted weapons, they will normally be attached to or placed in direct support of the lead elements.

c. Antitank Guided Missiles. The antitank squads are employed initially as in any other attack. After the seizure of a foothold, the squads are kept well forward and may be attached to attacking company teams or they are retained in general support to provide flank security. The missiles are capable of blasting holes in very thick walls and destroying enemy positions. Obstacles within the built-up area may restrict their movement.

d. Mortars. Both 4.2-inch and 81-mm mortars are usually employed in general support of their parent unit. The mortar's high trajectory allows it to be employed against targets behind buildings which cannot be engaged by artillery. High explosive shells with superquick and time fuzes are effective against rooftop targets. Shells with delay fuze settings are used to penetrate thin roofs and neutralize or destroy enemy positions in the top floors of buildings. During the continuation of the attack, the mortars may be used to provide smokescreens to cover the advance of assault elements in streets, parks, yards, and other open areas. Forward observers move with the attacking echelon to adjust fire on targets requested by the unit commander.

e. Artillery. The artillery is employed in its normal role of close support of the attacking echelon using direct or indirect fire, as appropriate. Artillery, particularly the self-propelled 155-mm and 8-inch howitzers, provides an excellent means of destroying or neutralizing bunkers, heavy fortifications, or troops in reinforced concrete buildings. Concrete-piercing 155-mm and 8-inch howitzer rounds can penetrate 36 and 56 inches of concrete, respectively, at a range of 2700 meters. Artillery can also be used to neutralize enemy positions on rooftops or in the top floors of buildings. During phase III of the attack, the effectiveness of massed artillery fires will be reduced because of restricted observation and the proximity of friendly and enemy troops; therefore, control of artillery fires is frequently decentralized. Time fire and proximity-fuze fire are effective against the enemy on rooftops and behind barricades. Artillery weapons should be protected against enemy antitank fire in a manner similar to that used for tanks.

f. Tanks.

(1) When the built-up area is small or lightly defended, the force should attempt to drive through or into the town as rapidly as possible using tanks, if available, as the leading element. In heavy house-to-house and street fighting, tanks support the movement of infantry by use of their main guns and machineguns to fire into buildings and to destroy steeples, tall chimneys, and other structures which may contain enemy observers. Tanks provide covering fire for infantry for the assault and reduction of enemy positions. Moving tanks remain close to buildings on the sides of the streets held by attacking units, while covering the opposite sides and firing at anything suspicious.

(2) Infantry units support the movement of tanks by locating targets, directing the fire of tanks, neutralizing or destroying antitank weapons, and protecting tanks from tank-hunter teams.

(3) Streets and alleys constitute ready-made fire lanes and firing zones. Vehicular traffic is greatly restricted and canalized and it is subject to ambush and close-range fire. Tanks are at a further disadvantage because their main guns cannot be depressed or elevated sufficiently to fire into the basements or upper floors of buildings at close range. All bridges and overpasses are checked for mines and boobytraps and for load capacity. Tanks should not move singly. Specific riflemen should be assigned to protect specific tanks.

(4) See FM 17-1 for details of employment.

g. Nuclear Weapons. It may not be desirable to use nuclear weapons in conjunction with a ground attack of a built-up area because of the casualties which would be inflicted on civilian populations, especially in friendly territory. Frequently, built-up areas will contain installations and facilities such as power and water stations, railroad yards, and key buildings. It is desirable to capture these intact for subsequent use by friendly forces and the civilian population. Plans for and conduct of the attack must provide for the protection of these facilities and installations from friendly fire and for preventing the enemy from destroying them.

63. Reconnaissance Units

Reconnaissance units at all levels normally are employed to protect the flanks and rear of attacking units. The capability for reconnaissance and security is somewhat reduced, however, by restricted observation and mobility in the built-up area. Army aircraft can be utilized to provide reconnaissance and security for the ground commander in built-up areas.

64. Engineers

a. Attached or supporting engineers are employed well forward and will frequently accompany the lead units.

b. Missions accomplished by engineers may include—

(1) Preparation and execution of demolitions for use in breaching walls or other obstacles.

(2) Location and assistance in mine removal.

(3) Clearance of barricades and debris to assist forward movement.

Section III. CONDUCT OF THE ATTACK

65. Isolation of the Area

Phase I is the isolation of the built-up area and the seizure of terrain features that dominate the approaches into it. The attacker secures positions outside the built-up area from which to support the entrance into it. The tactics and techniques for this phase of the operation do not differ from those employed in an attack against other well-organized enemy defenses.

66. Seizure of a Foothold

a. Phase II is the advance of the attacking force to the edge of the built-up area and seizure of a foothold. It should insure the elimination of the defender's ground observation and direct fires on the approaches into the built-up area. The attacker uses the foothold area to reorganize, decentralize control, and displace weapons to firing positions from which the continuation of the

attack can be supported. Favorable avenues of approach are exploited. Supporting weapons are used to neutralize the enemy and to isolate the foothold area from support and reinforcement from other parts of the built-up area. Artillery and mortar fires are used extensively to cover the advance of the attacking units and to prevent the enemy from manning crew-served or individual antitank weapons. They may also be used to blow gaps through tactical and protective wire where more efficient means of accomplishing this are not available. Smoke shells may be used to screen adjacent areas and to further isolate the foothold area. Supporting fires are shifted when attacking troops have reached the final coordination line, and leading elements move without delay to the first buildings to be seized. The initial objective is normally the first block of houses in the built-up area.

b. The probability of success is increased if the assault is launched from an unexpected direction and preferably in the early morning just before first light, during other periods of reduced visibility, or under cover of smoke.

c. Combat engineer vehicles, mechanized flamethrowers, and tanks equipped with mine detonating devices such as demolition snakes, flails, or rollers should be included in the assaulting force.

67. Clearance of the Built-Up Area

Phase III begins without pause after the completion of phase II. Phase III of the attack may be either a systematic block-by-block, house-to-house reduction of the built-up area or a rapid advance through the town with clearance of specific critical areas and strategic buildings. Clearance and seizure techniques depend upon the mission, size of the town, construction and building arrangement, and enemy dispositions and strength. Factors governing the selection and execution of the techniques are listed below.

a. When the built-up area is exceedingly large and heavily fortified, or when the mission requires a complete clearance of enemy forces, a methodical, house-to-house, and block-by-block clearance operation is performed. The area is divided into company zones of responsibility. Each subordinate unit must clear its zone completely, leaving no enemy in its rear (pars. 68–70).

b. When the built-up area is small or lightly defended, the attacking force should attempt to drive through or into the town as rapidly as possible to seize terrain or buildings and enemy routes into the town from the other side.

c. Mopping-up operations.

(1) In a strongly defended built-up area, the leading elements must mop up as they advance. Each building in the assigned zone must be entered and thoroughly searched for enemy. This procedure protects leading elements from surprise attacks on their rear, secures their lines of communication, and prevents support and reserve units from becoming involved in unexpected mopping-up operations which may hamper their prompt employment elsewhere.

(2) When a built-up area is lightly defended, it may be desirable for leading elements to push forward rapidly to seize critical areas. In such a situation, supporting elements and reserves are given specific mopping-up missions to clear sections of the area which have been bypassed or only hastily cleared by the leading units. Close coordination between the leading units and the mopping-up units is essential to prevent them from becoming engaged in a fire fight with each other because of mistaken identity.

d. Consolidation takes place as each unit objective is taken. Attention is given to placing weapons and men in firing positions to cover all avenues of approach. At this time, plans are made or completed for the continuation of the attack. When the entire built-up area has been secured, the consolidation will be such as to prevent the enemy from regaining a foothold within the buildings.

68. Assault Technique

a. The assault and clearance of an individual building or groups of buildings is carried out by a *searching party* supported by the fires of a *covering party.* This technique applies to all levels of units. Supporting weapons provide covering fires for larger units, while in the rifle squad one fire team may cover the other team as it searches.

b. The covering party protects and aids the advance of the searching party. It normally includes riflemen and grenadiers; weapons employed may include machineguns, rocket launchers, tanks, and other direct fire weapons. From selected firing positions, the covering party fires on the building to be entered and on any adjacent buildings from which enemy fire can be placed on the searching party. The searching party, on seizure of the designated buildings, provides covering fires and protection for the covering party as it displaces. When a street is the boundary between units, adjacent units assist each other with mutually supporting fires.

c. The searching party enters and searches all buildings that the unit is responsible for clearing. The party usually consists of riflemen, although special demolition teams may accompany it. The size of the searching party depends upon the size and character of the buildings to be searched. It should be kept small, since an excessively large searching party leads to confusion and the men get in each other's way. In the searching party, the riflemen operate as two-man *searching teams* under the direction of the squad or fire team leader.

d. The individual techniques of members of the searching party are emphasized because of the decentralized control involved.

(1) Before entering a room which is believed to contain enemy, the rifleman throws in a grenade. To take full advantage of the cover available, he should be trained to throw with either hand and from any position.

(2) Riflemen should be trained to fire quickly and accurately, either right- or left-handed, from any position. All portions of a room may not be visible to a man entering it (fig. 10). For close combat, emphasis is placed on quick firing rather than use of the bayonet. A fixed bayonet makes it more difficult to cross obstacles and move through small openings.

(3) A searching team of two riflemen normally is given the mission of searching one room. One man throws in a

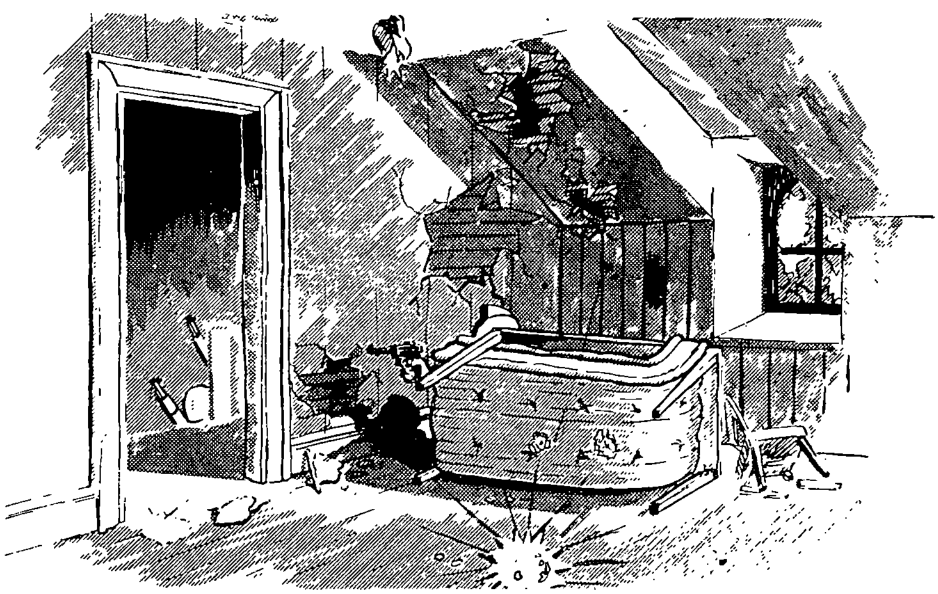


Figure 10. Corner barricade.

grenade, waits for it to explode, then enters quickly and places his back against the nearest wall. The second man follows and searches the room in detail. The searching team keeps the fire team leader informed of its progress in clearing assigned portions of a building.

(4) At times it may be desirable or necessary to create openings in walls to permit movement from one room or building to another. "Mouseholing", or creating these openings, can be done with handtools, explosives, or weapons.

69. Methods of Entry

There are three methods of entering and clearing buildings.

a. Entry at the Top.

(1) Whenever possible, buildings are cleared from the top down. Helicopters may be used to deliver assault troops to the roofs of buildings from which they will fight their way down to bottom floors. Entrance through the upper part of the building is preferable because it is easier to work down than up (fig. 11). An enemy who is forced to the top may be cornered and fight desperately or escape over the roofs, while one who is forced down to the ground level may be tempted to withdraw from the building, thus exposing himself to the fire of the covering party.

(2) Various means such as ladders, drainpipes, vines, helicopters, or the roofs of adjoining buildings may be used to reach the top floor or roof of a building. In some cases, one member of the team can climb onto the shoulders of the other and reach high enough to pull himself up. Toggle ropes are also useful. These are short ropes 4 to 6 feet long and about ½ inch in diameter. One end of the rope has an eye (loop) and the other is tied to a short stick (fig. 13). Several toggle ropes can be joined together to form wall-scaling ropes. By attaching a grappling hook to the end of a wall-scaling rope, a rifleman can scale a wall, swing from one building to another, or gain entrance to an upstairs window (fig. 14). Before entering any room that may contain an enemy, the rifleman always throws in a hand grenade.

b. Entry on Middle Floor. In many cases, it may be impossible to enter a building at the top. In these instances, entry should be made at the highest possible point using the techniques described in *a* above. The floor on which entry is made should be thoroughly cleared first. The searching party then moves to the top floor and clears the building from the top down (fig. 12).

c. Entry at the Bottom. When entrance must be made at ground level, it is preferable to use demolitions, artillery, tank fire, or other weapons to blast a new entrance. Doors or windows are likely to boobytrapped or covered by enemy fire. When the ground floor has been cleared, the searching party moves to the top of the building and works down.

70. Techniques of Movement

a. Streets, alleys, vacant lots, and other open areas offer the best fields of fire to the enemy and are avoided whenever possible. Open spaces that cannot be avoided are crossed quickly. Smoke is used liberally to conceal movement. Routes of advance are chosen which will not mask the covering fire.

b. Cover is selected in advance. The attacker hugs walls and moves rapidly from cover to cover. The rifleman rolls quickly over roofs and walls to avoid going over them upright (fig. 15). He must fire his rifle from his right shoulder around the right side of cover and from his left shoulder around the left side (fig. 16). He avoids firing over the top of cover unless his silhouette blends with the background.

c. In lightly defended areas, the requirement for speed may dictate moving through the streets and alleys without first clearing all buildings. Under these circumstances, the maneuver element should employ tanks, if available, to lead the column, closely followed and supported by infantry. If the infantry is mechanized, it should remain mounted until forced to dismount, and should remount to cross open areas. When dismounted, rifle elements move along each side of the street with leading squads keeping approximately abreast of the lead tanks.

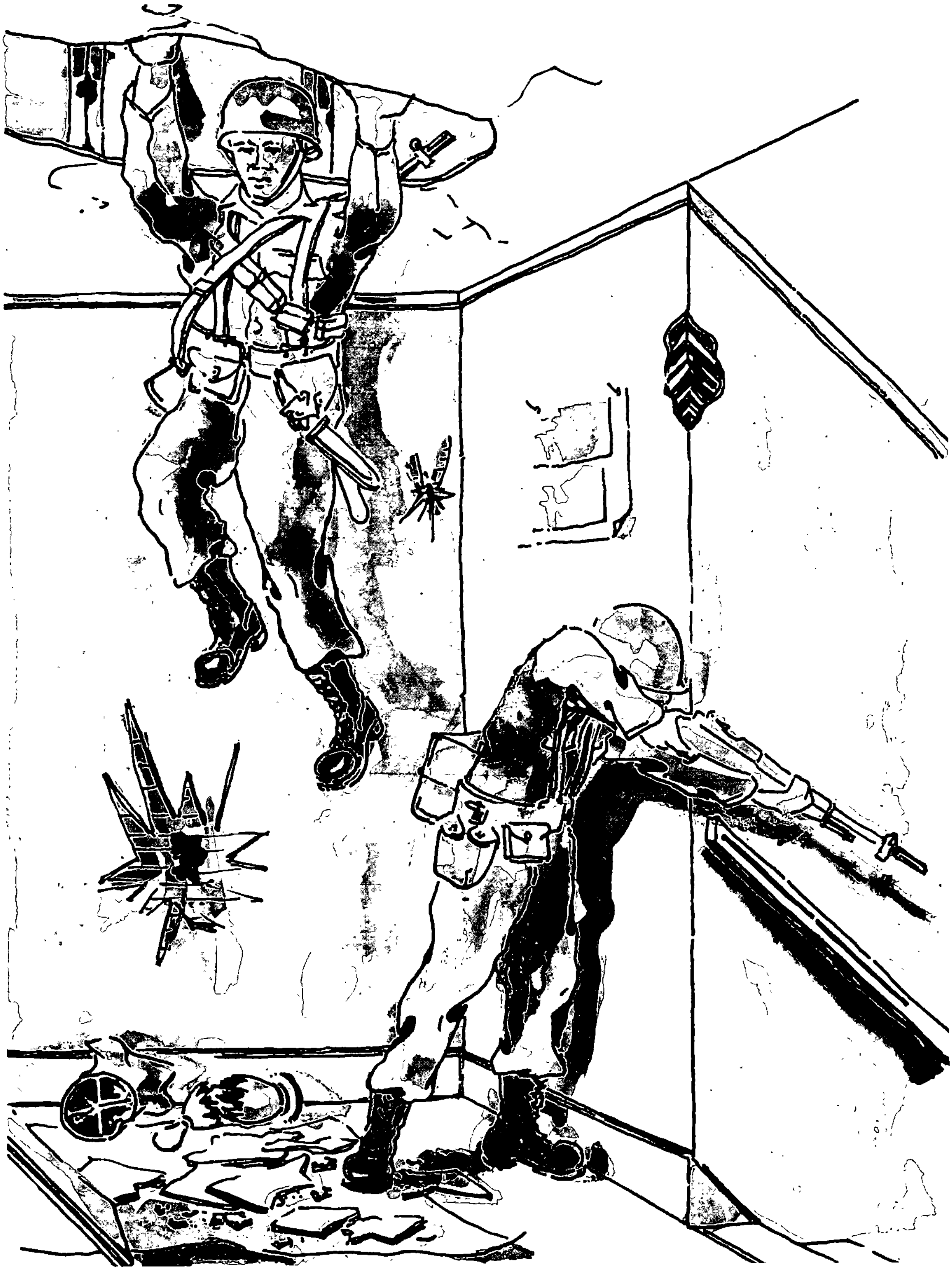


Figure 11. Attack from above.

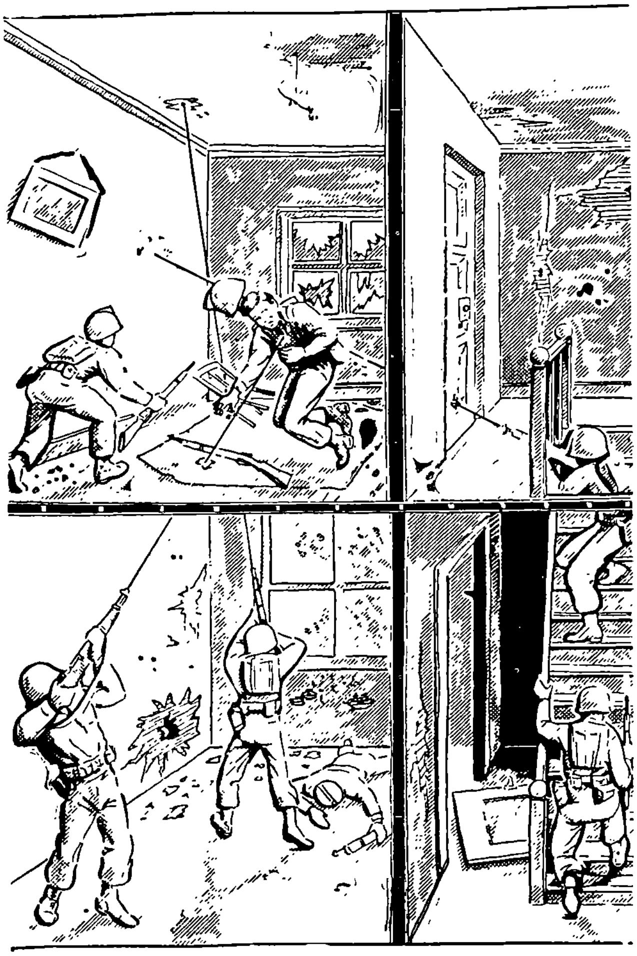


Figure 12. Attack through ceiling and wall.

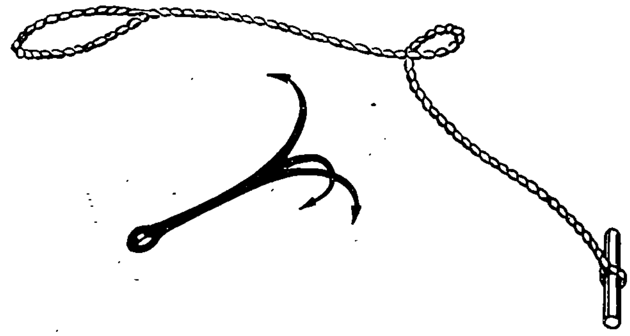


Figure 13. Toggle rope and grappling hook.

When not accompanied by tanks, rifle elements move single file along one side of the street under cover of fires from supporting weapons. They are well dispersed and move along quickly. Each man in the leading element is detailed to observe and cover a certain area, such as second floor windows on the opposite side of the street.

d. House-to-house fighting lends itself to surprise situations. Special attention must be given to alertness and all-around security. The attacker must be ready to meet the enemy not only on the front, flanks, and rear, but from above and below as well.

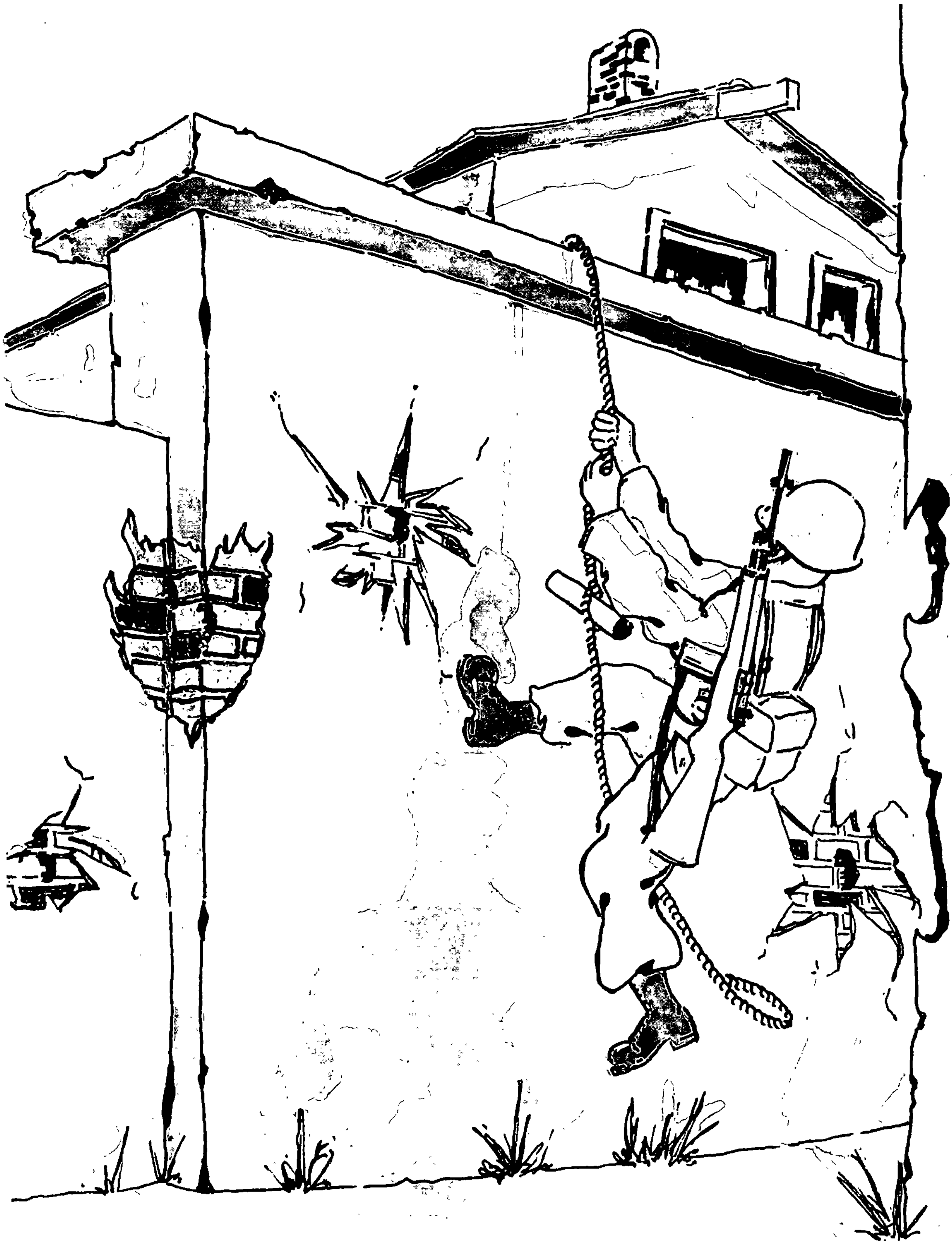


Figure 14. Use of toggle ropes and grappling hooks in climbing.



Figure 15. Crossing a wall.

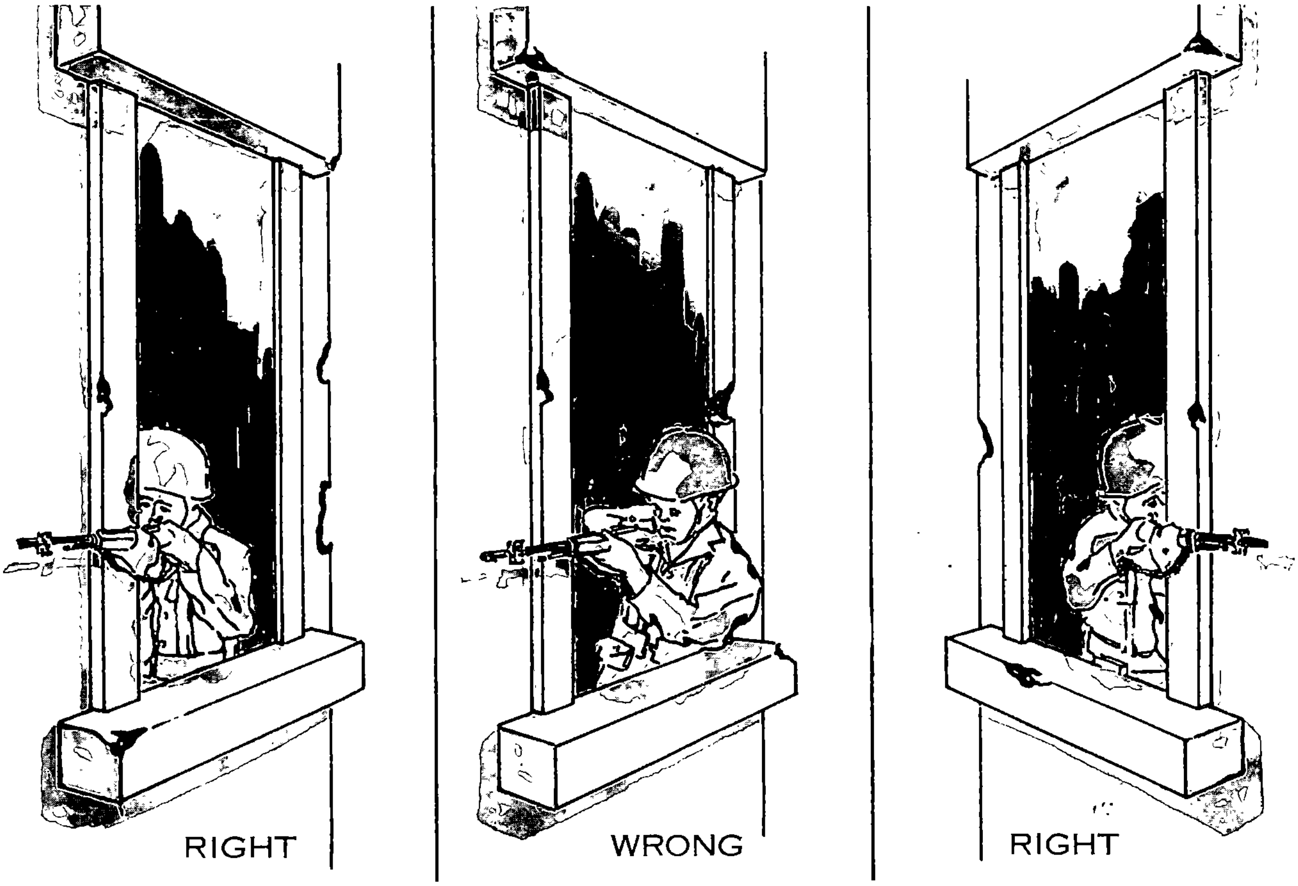


Figure 16. Firing along a street from windows.

Section V. COUNTERGUERRILLA OPERATIONS

71. General

a. Since built-up areas are the most unfavorable terrain for an overt combat element of a guerilla force, such a force will not normally choose to fight in these areas until it has reached the latter phases of its organizational development and has a strength and capability comparable to the conventional force. However, clandestine elements in cities and towns often incite organized rioting, seize portions of urban areas, erect street barricades, and resist attempts to enter the area. Noncombatants are sometimes held as hostages.

b. The objectives of these operations may be solely to conduct resistance, or, more probably, to commit the counterguerrilla force to actions against the civil population which will result in a gain of sympathizers for the guerrilla force and make it appear that it is promoting a popular cause.

c. When an urban area has been seized by an insurgent force, it must be recaptured as soon as possible to prevent an apparent success or victory by the guerrilla force, to maintain popular support for the friendly cause, and to free troops for use elsewhere.

72. Tactical Considerations

a. The tactics of reducing a barricaded built-up area (fig. 17) resemble the conventional tactics of normal street and house-to-house fighting.

b. A cordon is established to surround and seal off the barricaded area. The cordon is established at the next street or road out from the barricaded area which offers good visibility, fields of fire, and ease of movement. All unauthorized persons are cleared from the intervening area. The cordon

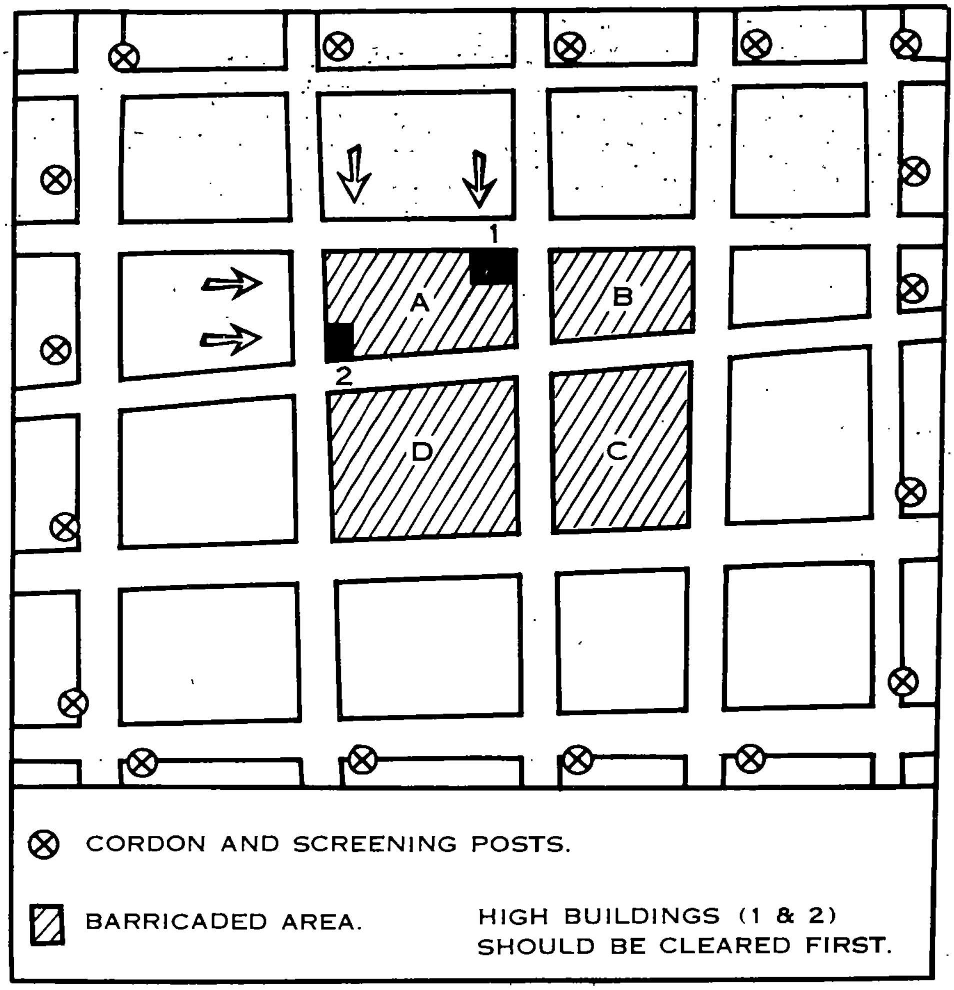


Figure 17. Reducing a barricaded urban area.

controls all entrances and exits of the encircled area.

c. Announcements are made to the insurgents, by such means as loudspeaker broadcasts and leaflets, that the area will be attacked at a given time unless the insurgents lay down their arms, return their hostages safely, and surrender peacefully. Amnesty and protection may be offered to those who surrender prior to the attack.

d. During the period between the time of the announcement and the time of the attack, a show of force in the vicinity of the barricaded area will assist in impressing upon the insurgents the hopelessness of defending against the forthcoming attack. This show of force may be accomplished by airlifting or parachuting the infantry attack units into their attack positions as early as possible, by employing large armored formations in the vicinity of the barricades, by firing indirect fire into uninhabited areas on the fringe of the barricaded area, and by making all overt preparations for the attack as obvious as possible to the insurgents.

73. Conduct of the Attack

a. If the insurgents do not surrender, maneuver and fire support elements attack at the prescribed time and clear the area as rapidly as possible with a minimum of killing of noncombatants and destruction of property. The cordon remains in place to maintain security, support the attack by fire where possible, and receive prisoners and rescued hostages from the attacking elements.

b. If the area is large, it is either divided into sectors for control purposes or the attack

is controlled by the use of progressive phase lines. As each sector or phase line is cleared, the cordon moves to exclude it. Close surveillance of cleared areas is maintained in case underground passageways are used as escape routes. Succeeding sectors are attacked and cleared one at a time.

c. Commanders must be alert to the psychological after effects of an offensive operation against a barricaded urban area. Innocent civilian adults and children will probably be killed and wounded by the action. The guerrilla force will attempt in every way possible to exploit this fact to the utmost to arouse the hatred of the civil population for the counterguerrilla force. A very effective means of countering such psychological warfare is the use of loudspeaker announcements and leaflets prior to the attack. These announcements and leaflets categorically state to the insurgents and the remainder of the civilian population that in the forthcoming attack (1) civilians will probably be killed or wounded and (2) the responsibility for such actions rests entirely on the insurgents, who may surrender and negate the necessity for such action.

CHAPTER 7
DEFENSE OF A BUILT-UP AREA

Section I. GENERAL

74. General

a. The use of a built-up area in the organization of a defense depends upon such factors as its size, its location in relation to the overall defensive mission, and whether it affords increased protection. Cities, towns, and villages constructed of flammable materials provide little protection and may become a hazard to the defender, while buildings of masonry construction can be developed into well-fortified defensive positions or strong points. Each building and each block in a town or city of masonry buildings is a potential fort and provides such concealment that the attacker is unable to determine which is strongly defended and which is lightly held. This causes him to dissipate his forces, and rubble and debris from his fires hinders his advance through the area and provides added protection for the defender. Cellars, sewers, subway tunnels, thick masonry walls, and reinforced concrete floors and roofs provide cover for the defender during heavy bombardments. When fires are lifted or shifted, the defender is able to emerge promptly to meet the enemy assault.

b. A built-up area that can be easily avoided has little defensive value. Thus, a built-up area suitable for defense must be located so that it forces the enemy to launch a direct attack or make a time-consuming maneuver.

c. The obstacle effect of built-up areas may permit their defense in lesser strength, thus providing economy-of-force. Under some conditions, elements of the division may secure built-up areas while the remainder of the division is retained in reserve to counterattack in the open. Consideration should also be given to defending on the outskirts or outside the built-up area to provide maneuver space for counterattacking forces.

75. Defensive Considerations

a. General. The defense of a built-up area is organized around key terrain features and centers of construction which preserve the integrity of the defense and provide ease of movement to the defender. Subterranean systems may be used for the movement of forces and may provide protection against nuclear attack. They are incorporated in the organization of the defense. Maximum use is made of rubble and other obstacles. Defenses are prepared in depth for continuous defense throughout the area.

b. Concealment and Cover. The manmade obstacles and cover characteristics of built-up areas favor the defender.

c. Restricted Movement. Movement of vehicles is restricted to the narrow lanes provided by streets and alleys. Movement of foot troops is also confined, although some traffic through buildings is possible. Because of these difficulties in movement, the commitment of large, centrally controlled reserves for counterattacks within the built-up area usually is not feasible.

d. Observation. Limited observation within the built-up area restricts both the attacker and the defender.

e. Communication. Radio communication may be impeded by the buildings in the area.

76. Obstacles

A built-up area is to a degree, an obstacle in itself since it canalizes and impedes an attack. Likely avenues of approach are blocked by obstacles and covered with fire. Antitank and antipersonnel obstacles, and toxic chemical agents and fougasses, reinforced with wire entanglements, hold the attacker under fire while he attempts to

breach them. Tank obstacles are improvised throughout the built-up area by blowing craters, demolishing walls, derailing or overturning streetcars or railroad cars, and by making maximum use of rubble and debris from demolished buildings. When authorized, the mining and boobytrapping of the obstacles, particularly those of rubble and debris, are highly effective deterrents to breaching operations. Nuisance mines and boobytraps, when authorized, are frequently placed inside unoccupied buildings.

Section II. PLANNING

77. General

a. The area defense is employed when defending a built-up area. The fundamentals of defensive combat are generally the same as for any other area defense. The differences are in techniques employed and degree of emphasis on certain fundamentals.

b. Because of abundance of concealment and cover but limited observation, special attention must be given to mutual support and all-around defense to counter enemy infiltration. The nature of the terrain usually leads to close combat with enemy forces. Therefore, added emphasis is placed on the barricading of streets and the employment of direct fire weapons.

c. The forward edge of the battle area (FEBA) should be located near the forward edge of the city or town. This prevents the enemy from entering the outskirts and gaining the advantage of cover, provided by buildings, to deploy his forces. The FEBA should not appear as a clearly defined line on which the attacker can mass his supporting fires. Under some conditions, it may be necessary or desirable to locate the FEBA back from the edge of the built-up area. For example, the character or density of construction along the forward edge may be less suitable for defense than buildings nearer the center of the town or city. Portions of the FEBA may also be withdrawn within the built-up area to deceive the enemy as to its true location.

d. All echelons of units are assigned specific areas to be defended. Positive measures are taken to maintain continuous surveillance over the entire area and to defend on short notice in any direction. Defenses are tied together to prevent encirclement and penetration.

e. Key buildings or groups of buildings that are strongly constructed and well sited for defense may be strongpoints. These are integrated into the overall defense plan. They are prepared to continue resistance even when bypassed and isolated.

f. When time permits, planning for the defense is detailed and centralized. Since the majority of actions are conducted by small units, control is decentralized during the conduct of the defense.

78. Scheme of Maneuver

a. The development of a scheme of maneuver for the defense of a built-up area is similar to that for other defensive operations. It involves the plan for placement and movement of the organic and attached maneuver units to accomplish the mission. Throughout the development of the scheme of maneuver, the commander considers the mission, enemy, terrain and weather, and troops available, and their effect on the plan of defense.

b. Defensive echelons include the security area, forward defense area, and the reserve.

79. Security Echelon

a. The security echelon includes covering forces, a general outpost, and combat outposts (COPL) as in other situations. They cover all approaches to the built-up area and provide observation to give warning of enemy approach, adjust long range fires on the attacker, and deceive the enemy as to the true location of the FEBA. They accomplish their missions by delaying and disrupting the enemy advance.

b. Local security elements occupy foxholes outside of buildings at night and move inside the buildings during daylight hours.

c. When the COPL is well forward of the edge of the built-up area, tanks may be employed with the combat outpost. Due to their limited maneuverability in restricted areas, however, tanks are not usually employed with the combat outpost when the outpost is on or near the edge of the built-up

area and can be supported by tanks on the FEBA (fig. 18).



Figure 18. Tank movement restricted by built-up area and rubble.

80. Forward Defense Forces

a. The determination of the size of forces to be employed on the FEBA, the width of the sector assigned to each unit, and the specific locations of defensive positions depend upon the mission; size, trafficability, and natural defensive strength of the area to be defended; enemy capabilities; and capabilities of the defender.

b. Defense of the FEBA normally is assigned to infantry battalions or infantry-heavy battalion task forces. Battalions are usually assigned frontages of from four to eight city blocks (an average city block is approximately 175 meters) and a depth of three to six city blocks. Battalions normally employ two companies forward and retain one in reserve.

c. Forward companies normally employ two platoons forward and one in reserve. Factors influencing the disposition of platoons are as stated in paragraph 77. With two platoons forward, the forward rifle company may be assigned a frontage of two to four city blocks, and a depth of two to three city blocks. This minimum figure applies in areas of dense, block-type construction, multistory buildings and underground passages.

(1) Rifle platoons along the FEBA are assigned one or two blocks to defend, depending on the character of building construction. Large, strongly constructed buildings such as courthouses, post offices, or public utility buildings may require occupation and defense by an entire platoon. Each individual is assigned a sector of fire and several firing positions. By frequently shifting his firing position, a rifleman can cover his sector and deceive the enemy as to his true location. Machineguns are employed to place flanking, grazing fire across the front of the FEBA. They are usually placed at ground level to achieve maximum grazing fire. Rifle platoon antitank weapons are located to command street intersections. They may be located in upper floors to gain better observation and fields of fire. They, too, must have several alternate positions. The platoon leader must devote special attention to security against entry into the platoon area from the flanks, rear, overhead, or underground. Specific individuals are designated to perform these tasks.

(2) Tank elements of the company team and antitank weapons of the weapons platoon are employed to cover the more dangerous avenues of armor approach. They are usually used in conjunction with barricades along the FEBA, in which case they may be attached to a rifle platoon. When streets entering the company area are numerous, tanks and antitank weapons may be employed under company control and positioned in depth. In either case, supplemen-

tary positions are selected and prepared to cover other streets entering the area from the front, flanks, and rear.

(3) The 81-mm mortar section is employed in general support. Difficulty may be encountered in finding positions which provide adequate mask clearance. When the company position is very shallow, mortars may be emplaced in the battalion reserve area and support the company from that location. In planning concentrations, priorities are given to streets and other open areas as well as areas containing lightly constructed buildings. Extensive use of illuminating fires is planned for the hours of darkness. Due to the excellent cover normally afforded defending troops in a built-up area, airburst concentrations may be planned much closer to friendly positions than in other situations.

(4) Reserve platoons of the forward companies prepare positions to limit penetrations, defend against attack from the flanks and rear, maintain surveillance over areas not assigned to forward platoons, support forward platoons by fire (primarily with machineguns and antitank weapons or tank main guns), and prepare to counterattack as required. Small unit counterattacks are more common in the defense of built-up areas than in most other defensive situations. They are launched promptly to regain key individual buildings or groups of buildings that have been lost to, or contain, the enemy. Counterattacks may be executed at night.

81. Reserve Company

Reserve companies are employed in the defense of a built-up area in much the same manner as in other area defenses. Due to restricted routes of movement and the abundance of concealment and cover, reserve companies are usually somewhat closer to forward companies than in open terrain. In addition to the usual reserve tasks of preparing blocking positions and maintaining surveillance of the rear area, elements of the reserve may prepare special covered routes through buildings for use during counterattack.

82. Reconnaissance Platoon

Prior to withdrawal of the general outpost, the reconnaissance platoon may be employed forward of the COPL as in other defensive situations. Its mobility, communications, and firepower particularly suit it for security and warning missions. Following withdrawal of the outpost, the reconnaissance platoon is used on the flanks and rear or in patrolling of rear areas. The platoon's mobility is greatly reduced within the built-up area, where scouts and riflemen must usually operate dismounted. Close-in protection by riflemen must be provided for the antitank weapons or tanks. The platoon may assume security missions of reserve rifle companies or become a part of the reserve when the primary reserve is committed.

83. Boundaries and Coordinating Points

Boundaries are usually located in streets or alleys with coordinating points at street intersections. When a street is designated as a boundary, responsibility for both sides of the street is given to one unit. In order to provide properly for a coördinated defense, rear boundaries are usually designated.

84. Preparation of the Defensive Area

a. Priority is given to erection of obstacles to the movement of enemy combat vehicles. In the forward area, streets are blocked by craters, rubble, or barricades made of locally available material. Buildings may be demolished to provide material for the construction of obstacles. Wire entanglements and antipersonnel mines are added to prevent passage by foot troops and to hamper efforts to remove the obstacles. Enemy riflemen who will attack through buildings are at a considerable disadvantage when their supporting tanks are unable to move abreast of them in the streets. Street barricades are closely coordinated with antitank and small arms fires. Movable barricades are prepared for use in rear areas.

b. Buildings that contribute most to the general scheme of defense are selected for

occupation. Mutual support between defended buildings is essential. Within the general plan for defense, buildings are selected that offer the best fields of fire and observation, good defenses on all sides, and good cover from enemy fires. Buildings should be carefully inspected to determine defensive strengths and weaknesses. Many structures that appear to be strong may have thin veneer walls and offer little protection. Outside appearances should be altered as little as possible to avoid attracting attention. Unoccupied buildings are barricaded within to prevent easy entry by the enemy. Boobytraps, when authorized, may be used in vacant buildings. Buildings, or portions of them, which obstruct fields of fire may be demolished.

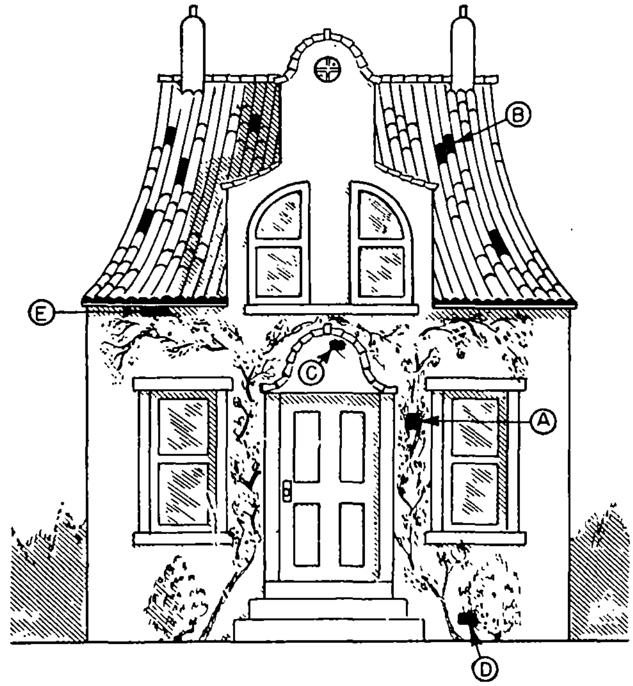
c. Windowpanes are knocked out to prevent injury from flying glass. Openings are screened or closed to keep out grenades. Curtains may be hung over the upper portion of openings to darken the rooms and prevent observation. Unoccupied buildings and rooms are similarly prepared.

d. There should be an ample number of loopholes (firing ports) so that when a man has fired from one, and thereby possibly disclosed his position, he can move to another. The most effective loopholes are usually those near the ground (fig. 19). Places that



Figure 19. Typical firing ports and observation slits in wall of masonry building.

provide the element of surprise are used whenever possible (fig. 20). It may be desirable to knock out a few bricks or make a small hole in the corner of a building for a firing aperture. Exclusive use of windows is avoided. Interior rooms should have loopholes opening into adjoining rooms.



A Loophole behind vine.
B Tiles lifted on roof. Dark patches are painted on roof as dummy loopholes.
C Loophole under shadow of porch.
D Loophole at ground level behind bush.
E Loophole under the eaves. Dummies should be painted all along under the gutter.

Figure 20. Loopholes in unexpected places.

e. When windows or large openings are used as loopholes, firing positions should be well back in the room to provide concealment for the firer. The area in front of the weapon should be cleared or dampened to keep dust kicked up by the muzzle blast from giving away the position. Firing positions within the room are reinforced with sandbags. Sandbag or other firing rests are provided to conform to the position of the loophole.

f. If possible, two exits from each occupied room should be kept open. Holes for movement from one room to another are made in concealed places such as behind heavy furniture or under stairs. Openings are located so the enemy cannot see into the room. Doors used by the defender are sandbagged to provide bulletproofing and the minimum opening necessary for passage.

g. One or more well-camouflaged and sandbagged observation posts are prepared in

attics or on upper floors. These locations may also be used for sniping. They are particularly useful when entry over the roofs or through upper floors is possible. Structural features such as drain pipes, which may help the enemy gain entrance through upper floors, should be removed.

h. As time permits, the fortification of buildings used for defense is improved. The ceilings of cellar dugouts are reinforced to provide bomb-proof shelters. Upper floors are bulletproofed with sandbags. Walls are reinforced and sandbagged.

i. Fires are a particular hazard to the defender. Flammable trash must be cleared away and gas and electricity turned off. Firefighting equipment must be collected throughout the area and kept close at hand. Sand and water are stored for future use. Exits (covered if possible) are required for rapid escape from burning buildings.

85. Fire Support Planning

a. Due to the narrower frontages normally assigned in the defense of built-up areas, continuous final protective fires to break up the enemy assault are usually possible. Final protective fires include direct fires, allocated barrages of supporting artillery and mortars, and organic mortars. Barrages cover dangerous avenues of approach into the built-up area.

b. As with a defense in depth on open terrain, plans are made to bring the enemy under fire at long range and subject him to increasingly heavy fire as he approaches the battle area; to stop his assault with final protective fires immediately in front of the battle area; and to eject him by counterattack from within the built-up area if he succeeds in penetrating it.

86. Employment of Organic and Supporting Weapons

a. Mortars. The 4.2-inch mortars normally are employed in general support. Desirably, the 4.2-inch mortars are emplaced within or near an occupied position of the battalion reserve to preclude displacement in the event of a minor penetration. Mortar positions with adequate mask clearance may be limited within the built-up area, and this factor may dictate the exact location of the weapons. Occasionally, when the depth of the battalion defensive area is quite shallow or when suitable firing positions are not available within the battalion area, the 4.2-inch mortars may be positioned behind the reserve.

b. Davy Crockett. The battalion Davy Crockett section is normally employed in general support, and it is positioned to engage enemy targets forward of the FEBA. Likely target areas are selected and firing data are computed in advance for the delivery of on-call nuclear fires.

c. Tanks. Tanks are used to provide antitank defense and to serve as a part of the reserve for the execution of counterattacks. Tanks may be attached to forward rifle companies to engage enemy armor forward of the battle area (par. 79*c*).

d. Artillery.

(1) The supporting artillery units should be located and echeloned so as to permit the delivery of fires to support all phases of the defense. Artillery is positioned to permit the massing of its fires on critical avenues of approach.

(2) Initially, the artillery delivers long-range fires in support of the security echelon, with close-in fires and barrages designed to engage the enemy as he approaches the FEBA and break up his assault. Fires are also planned for the support of counterattacks.

e. Antitank Weapons. Antitank weapons are positioned to cover the front and flanks. Elements of the battalion antitank platoon may be attached to forward rifle companies, with priority given to those units covering armor approaches. Company antitank weapons are located in each rifle platoon area to fire against enemy armor, grouped personnel, and crew-served weapons.

87. Engineers

Supporting engineers assist in the organization of the defense by preparing street barricades and other obstacles (par. 76), using demolitions, mines, wire, and rubble. Obstacles are integrated into the division barrier plan. If time permits, the engineers may provide special equipment and skilled personnel for improving positions, constructing special fortifications beyond the capabil-

ity of the rifle companies, and maintaining routes within the built-up area.

88. Logistical Support

All types of supplies are dispersed and stocked in sufficient quantities to sustain each defense area or center of resistance for a prolonged period in the event it becomes isolated. Ammunition, food, water, and other critical items are securely stored in bombproof and fireproof shelters, if available. Supply and distribution of water for troop consumption and firefighting may become a serious problem if local sources of water become contaminated or destroyed. Plans are made for aerial resupply of critical items.

89. Communication

a. Maximum use is made of wire for transmitting orders and disseminating information. Existing commercial wire facilities, if operable, may be used to supplement organic means. When practicable, additional telephones are provided to forward elements for communication with subordinate units. Wire is installed in underground passages where possible.

b. In addition to security restrictions imposed upon radio traffic, unfavorable operating conditions in the built-up area may reduce the effectiveness of radios, particularly those in small dismounted infantry units.

90. Counterattack Plans

Counterattack plans are prepared by units down to company level. Counterattacks by company reserves are more common in defense of built-up areas than in defense in open terrain. Prompt offensive action is planned to regain any key building or group of buildings the enemy may have seized. Routes through buildings are prepared in advance for movement of the counterattack force.

Section III. CONDUCT OF THE DEFENSE

91. Conduct of the Defense

a. As the enemy comes under observation of security elements, he is subjected to long-range artillery fires. Tactical air, if available, will be used to delay the enemy advance and inflict maximum casualties. Nuclear weapons may also be employed if suitable targets are located and developed. Prior to withdrawal, the security elements delay, deceive, and disorganize the enemy to the maximum extent possible without becoming decisively engaged.

b. Upon withdrawal of the combat outpost (COP), FEBA forces engage enemy targets as they appear, or fire against suspect or likely enemy assembly areas or other positions. Low-yield nuclear weapons (to include the Davy Crockett) may be fired against on-call targets. Further delay is accomplished by previously prepared obstacles such as antitank and antipersonnel minefields, barricades, and barbed wire.

c. When the enemy reaches an area from which he can launch an assault, final protective fires are executed to disorganize the attacking forces and inflict maximum casualties. If the attacker succeeds in reaching the battle area, resistance is continued by increased fires and by close combat in the streets and within buildings. Flat trajectory individual and crew-served weapons, grenade launchers, and hand grenades become the primary means of defense within the built-up area (par. 84). Each unit holds its assigned area at all cost to maintain the continuity of the defense. Gaps between units are closed by fires or by elements of their reserves.

d. Observation must be maintained at all times. Observers in upper floors must be able to spot enemy parties attempting to breach a wall or otherwise gain entry. Hand grenades thrown or dropped out of windows may be effective. Successful entry of a defended building must be made known to all occupants without delay. Immediate efforts are made to seal off and destroy the intruders. When ordered to withdraw from a portion of a building, troops withdraw toward prepared exits, preferably in upper floors. They use demolitions to create new openings when necessary.

92. Employment of Reserves

Reserves are used to eject the enemy before he can seize a foothold and consolidate and

enlarge his penetration. They accomplish this by blocking or counterattacking penetrating elements. Initially, all available fires are directed at the penetrating force, during which designated forces counterattack in accordance with previously prepared plans. The restrictions to observation with built-up areas require that extremely close coordination of fires be achieved between the counterattack force and adjacent units.

APPENDIX I
REFERENCES

AR 105-87	Electronic Warfare.
AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.
FM 1-15	Aviation Battalion, Infantry, Airborne, Mechanized and Armored Divisions.
FM 1-100	Army Aviation.
FM 3-5	Chemical, Biological, and Radiological (CBR) Operations.
FM 3-10	Chemical and Biological Weapons Employment.
(S) FM 3-10A	Chemical and Biological Weapons Employment (U).
FM 3-12	Operational Aspects of Radiological Defense.
FM 5-1	Engineer Troop Organizations and Operations.
FM 5-15	Field Fortifications.
FM 5-31	Use and Installation of Boobytraps.
FM 5-34	Engineer Field Data.
FM 5-135	Engineer Battalion, Armored, Mechanized, and Infantry Divisions.
FM 5-136	Engineer Battalion, Airborne Division.
FM 6-20-1	Field Artillery Tactics.
FM 6-20-2	Field Artillery Techniques.
FM 7-11	Rifle Company, Infantry, Airborne Infantry, and Mechanized Infantry.
FM 7-15	Infantry, Airborne Infantry, and Mechanized Infantry, Rifle Platoons and Squads.
FM 7-20	Infantry, Airborne Infantry, and Mechanized Infantry Battalions.
FM 7-30	Infantry, Airborne, and Mechanized Division Brigades.
FM 11-50	Signal Battalion, Armored, Mechanized and Infantry Divisions.
FM 11-57	Airborne Division Signal Battalion.
FM 17-1	Armor Operations.
FM 17-15	Tank Units, Platoon, Company, and Battalion.
FM 17-30	The Armored Division Brigade.
FM 17-36	Divisional Armored and Air Cavalry Units.
FM 17-95	The Armored Cavalry Regiment.
FM 19-15	Civil Disturbances and Disasters.
FM 19-25	Military Police Traffic Control.
FM 19-40	Handling of Prisoners of War.
FM 20-32	Land Mine Warfare.
FM 20-33	Ground Flame Warfare.
FM 20-60	Battlefield Illumination.
FM 21-5	Military Training.
FM 21-6	Techniques of Military Instruction.
FM 21-10	Military Sanitation.
FM 21-11	First Aid for Soldiers.
FM 21-18	Foot Marches.
FM 21-20	Physical Training.
FM 21-26	Map Reading.
FM 21-30	Military Symbols.
FM 21-40	Small Unit Procedures in Chemical, Biological, and Radiological (CBR) Operations.
FM 21-41	Soldier's Handbook for Chemical and Biological Operations and Nuclear Warfare.
FM 21-48	Chemical, Biological, and Nuclear Training Exercises and Integrated Training.
FM 21-50	Ranger Training and Ranger Operations.
FM 21-60	Visual Signals.
FM 21-75	Combat Training of the Individual Soldier and Patrolling.
FM 21-76	Survival.
FM 21-77	Evasion and Escape.
FM 22-100	Military Leadership.
FM 23-20	Davy Crockett Weapon Systems in Infantry and Armor Units.
FM 24-18	Field Radio Techniques.
FM 24-20	Field Wire and Field Cable Techniques.
FM 25-10	Motor Transportation, Operations.
FM 27-10	The Law of Land Warfare.
FM 30-5	Combat Intelligence.
FM 30-7	Combat Intelligence: Battle Group, Combat Command, and Smaller Units.
FM 30-10	Terrain Intelligence.
FM 30-16	Technical Intelligence.
(S) FM 30-18	Collection Intelligence Operations, Intelligence Corps, U.S. Army (U).
FM 31-10	Barriers and Denial Operations.
FM 31-15	Operations Against Irregular Forces.
FM 31-16	Counterguerrilla Operations.
FM 31-21	Guerrilla Warfare and Special Forces Operations.
(C) FM 31-40	Tactical Cover and Deception (U).

(CM) FM 32-5	Communications Security (U).
FM 33-5	Psychological Operations.
FM 41-5	Joint Manual of Civil Affairs/Military Government.
FM 41-10	Civil Affairs Operations.
FM 54-2	Division Logistics and the Support Command.
FM 57-35	Airmobile Operations.
FM 61-100	The Division.
(S) FM 100-1	Doctrinal Guidance (U).
FM 100-5	Field Service Regulations; Operations.
FM 101-5	Staff Officers' Field Manual; Staff Organization and Procedure.
FM 101-10, Part II	Staff Officers' Field Manual; Organizational, Technical and Logistical Data.
(S) FM 101-31-2	Staff Officers' Field Manual; Nuclear Weapons Employment (U).
(S) TC 3-7	Capabilities and Employment of Biological Agents (U).
TC 3-10	Defense Against V-Agents.
TC 7-3	Antipersonnel Weapon (Claymore) M18 and M18A1.
(C) TC 100-1	Employment of Nuclear Weapons (U).
TC 101-2	Tactical Operations Centers.
TM 3-200	Capabilities and Employment of Toxic Chemicals.
TM 3-210	Fallout Prediction.
TM 3-220	Chemical, Biological, and Radiological (CBR) Decontamination.
TM 5-280	Foreign Mine Warfare Equipment.
TM 9-1940	Land Mines.
TM 9-1946	Demolition Materials.
TM 57-210	Air Movement of Troops and Equipment.
DA Pam 108-1	Index of Army Motion Pictures, Filmstrips, Slides and Phono-Recordings.
DA Pam 310-Series	Military Publications Indexes.
DA Pam 750-1	Preventive Maintenance Guide for Commanders.

APPENDIX II
TRAINING

1. Objectives

The objectives of training for combat in fortified or built-up areas are as follows:

a. Train individuals and units in the proper tactics and techniques for the attack or defense of fortified or built-up areas.

b. Train individuals and teams in the use of special-purpose assault equipment and weapons.

c. Train the individual in the peculiarities and techniques of the enemy in fortified or built-up area fighting.

d. Prepare the individual soldier psychologically for successful combat in a fortified or built-up area.

e. In the case of the attack, make the individual completely familiar with the particular area in which the attack is to be conducted.

2. Training for the Attack

a. Fortified Areas. Practical application and realism are stressed throughout all training. Both *technical training* (use of special equipment) and *tactical training* are conducted in terrain similar to that in the fortified area to be attacked.

(1) *Special technical training* for the attack of a fortified position should emphasize the following:

(*a*) Development of proficiency in the use of special-purpose weapons.

(*b*) Use of demolitions.

(*c*) Breaching of minefields.

(*d*) Passage of obstacles.

(*e*) Peculiarities and techniques of the enemy in defense of fortified areas.

(*f*) Layout and characteristics of the fortified area.

(*g*) Establishment and use of special communication techniques.

(2) *Special tactical training* must be directed toward developing well-coordinated teams for the accomplishment of specific tasks. Rehearsals and the study of aerial photos and terrain models contribute to development of proficiency. Emphasis is placed upon the training of platoon-size assault teams and on the coordination of fire support and maneuver elements.

b. Built-up Areas. When training for the attack of a specific area, most of the training time is devoted to technical training (use of special equipment) and the practical application of tactics and techniques for the specific area to be attacked. Whenever possible, both tactical and technical training should be conducted in a built-up area similar to the one to be attacked.

(1) *Special technical training* for the attack of a built-up area should emphasize the following:

(*a*) Development of proficiency in the use of special-purpose weapons and equipment.

(*b*) Use of demolitions.

(*c*) Boobytraps and mine warfare.

(*d*) Passage of obstacles common to built-up areas.

(*e*) Peculiarities and techniques of the enemy in built-up area fighting.

(*f*) Plan and characteristics of the area to be attacked.

(*g*) Establishment and use of special communication techniques.

(*h*) Use of flamethrowers.

(2) *Special tactical training* for the attack of a built-up area should emphasize the following:

(*a*) Fire and maneuver by small units in built-up areas.

(*b*) Techniques of entry and search of buildings.

(*c*) Techniques of individual fighting in close quarters.

(*d*) Techniques of infantry-tank teamwork.

3. Training for the Defense

a. Fortified Areas. Special training for the defense is usually conducted in the positions to be defended.

(1) *Special technical training* should stress the following:

(*a*) Installation of mines.

(*b*) Construction of obstacles.

(*c*) Construction of shelters and emplacements.

(*d*) Development of proficiency in the use of any special-purpose or additional weapons.

(*e*) Establishment and use of special communication techniques.

(2) *Special tactical training* stresses rehearsal of all individuals and units in their defensive roles. To the extent permitted by installed obstacles, the aggressor is used to maneuver against security forces and forward forces, and to require commitment of reserves to counterattack or occupy blocking positions. Alerts of the defensive garrison are conducted realistically, frequently, and at varying hours. All elements of the defensive force must participate in alerts. Emphasis is placed upon frequent rehearsals of the counterattack plans.

b. Built-up Areas. Training for the defense of a specific built-up area is usually conducted on the site. Training is accomplished concurrently with preparation of the defense.

(1) *Special technical training* for the defense of a built-up area should include—

(*a*) Construction of obstacles.

(*b*) Selection and preparation of buildings to be defended.

(*c*) Peculiarities and techniques of the enemy in built-up area fighting.

(*d*) Installation and proficiency in the use of special communication techniques.

(2) *Special tactical training* for defense of a built-up area should include—

(*a*) Thorough indoctrination of individuals in the plan of defense.

(*b*) Training of individuals in fighting in close quarters.

(*c*) Simulated attacks to rehearse individuals and units in their defensive roles.

(*d*) Training of units in fighting when isolated from other friendly units.

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By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:
J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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17–22 (1)

NG: State AG (3); Units—Same as Active Army except allowance is one copy to each unit.
USAR: Same as Active Army except allowance is one copy to each unit.
For explanation of abbreviations used, see AR 320–50.

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